



Sequence Listing

<110> Mount, David B.  
Delpire, Eric  
Gamba, Gerardo  
Alfred L. George, Jr.

<120> PURIFIED AND ISOLATED POTASSIUM-CHLORIDE COTRANSPORTER NUCLEIC ACIDS  
AND POLYPEPTIDES AND THERAPEUTIC AND SCREENING METHODS USING SAME

<130> Attorney Docket No. 1242-26-2

<140> US/09/835,976A

<141> 2001-04-16

<160> 131

<170> PatentIn Ver. 2.1

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Glu Gly Pro Glu Pro Glu Arg Pro Ser Pro Gly Asp Gly Asn Pro Arg  
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Glu Asn Ser Pro Phe Xaa Asn Asn Val Glu Val Glu Gln Glu Ser Phe  
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Phe Glu Gly Lys Asn Met Ala Leu Phe Glu Glu Met Asp Ser Asn	
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ccc atg gtg tcc tcg ctg ntc aac aag ctg gcc aac tac acc aac ctg	289
Pro Met Val Ser Ser Leu Xaa Asn Lys Leu Ala Asn Tyr Thr Asn Leu	
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Ser Gln Gly Val Val Glu His Glu Glu Asp Glu Glu Ser Arg Arg Arg	
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Glu Ala Lys Ala Pro Arg Met Gly Thr Phe Ile Gly Val Tyr Leu Pro	
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Cys Leu Gln Asn Ile Leu Gly Val Ile Leu Phe Leu Arg Leu Thr Trp	
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Cys Cys Thr Cys Thr Met Leu Thr Ala Ile Ser Met Ser Ala Ile Ala	
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Ile Leu Ala Ile Tyr Ala Gly Val Ile Lys Ser Ala Phe Asp Pro Pro	
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Ile Ala Ala Ser Phe Thr Leu Leu Val Gly Ile Tyr Phe Pro Ser Val	
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Thr Gly Ile Met Ala Gly Ser Asn Arg Ser Gly Asp Leu Lys Asp Ala	
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Gln Lys Ser Ile Pro Thr Gly Thr Ile Leu Ala Ile Val Thr Thr Ser	
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Phe Ile Tyr Leu Ser Cys Ile Val Leu Phe Gly Ala Cys Ile Glu Gly	
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Val Val Leu Arg Asp Lys Phe Gly Glu Ala Leu Gln Gly Asn Leu Val	
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Cys	Thr	Leu	Val	Leu	Met	Ala	Leu	Val	Val	Phe	Val	Gly	Val	Lys	Tyr	260	265	270
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Leu	Ala	Ile	Tyr	Ala	Gly	Val	Ile	Lys	Ser	Ala	Phe	Asp	Pro	Pro	Asp	290	295	300
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Asp	Glu	Tyr	Phe	Ile	Gln	Asn	Asn	Val	Thr	Glu	Ile	Gln	Gly	Ile	Pro	355	360	365
Gly	Ala	Ala	Ser	Gly	Val	Phe	Leu	Glu	Asn	Leu	Trp	Ser	Thr	Tyr	Ala	370	375	380
His	Ala	Gly	Ala	Phe	Val	Glu	Lys	Lys	Gly	Val	Pro	Ser	Val	Pro	Val	385	390	395
Ala	Glu	Glu	Ser	Arg	Ala	Ser	Thr	Leu	Pro	Tyr	Val	Leu	Thr	Asp	Ile	405	410	415

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Val	Leu	Arg	Asp	Lys	Phe	Gly	Glu	Ala	Leu	Gln	Gly	Asn	Leu	Val	Ile	485	490	495
Gly	Met	Leu	Ala	Trp	Pro	Ser	Pro	Trp	Val	Ile	Val	Ile	Gly	Ser	Phe	500	505	510
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Leu	Leu	Gln	Ala	Ile	Ala	Arg	Asp	Gly	Ile	Val	Pro	Phe	Leu	Gln	Val	530	535	540
Phe	Gly	His	Gly	Lys	Ala	Asn	Gly	Glu	Pro	Thr	Trp	Ala	Leu	Leu	Leu	545	550	555
Thr	Val	Leu	Ile	Cys	Glu	Thr	Gly	Ile	Leu	Ile	Ala	Ser	Leu	Asp	Ser	565	570	575
Val	Ala	Pro	Ile	Leu	Ser	Met	Phe	Phe	Leu	Met	Cys	Tyr	Leu	Phe	Val	580	585	590
Asn	Leu	Ala	Cys	Ala	Val	Gln	Thr	Leu	Leu	Arg	Thr	Pro	Asn	Trp	Arg	595	600	605
Pro	Arg	Phe	Lys	Phe	Tyr	His	Trp	Thr	Leu	Ser	Phe	Leu	Gly	Met	Ser	610	615	620
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Ala	Met	Leu	Ile	Ala	Gly	Cys	Ile	Tyr	Lys	Tyr	Ile	Glu	Tyr	Arg	Gly	645	650	655
Ala	Glu	Lys	Glu	Trp	Gly	Asp	Gly	Ile	Arg	Gly	Leu	Ser	Leu	Asn	Ala	660	665	670
Ala	Arg	Tyr	Ala	Leu	Leu	Arg	Val	Glu	His	Gly	Pro	Pro	His	Thr	Lys	675	680	685
Asn	Trp	Arg	Pro	Gln	Val	Leu	Val	Met	Leu	Asn	Leu	Asp	Ala	Glu	Gln	690	695	700
Ala	Val	Lys	His	Pro	Arg	Leu	Leu	Ser	Phe	Thr	Ser	Gln	Leu	Lys	Ala	705	710	715
Gly	Lys	Gly	Leu	Thr	Ile	Val	Gly	Ser	Val	Leu	Glu	Gly	Thr	Tyr	Leu	725	730	735

Asp	Lys	His	Met	Glu	Ala	Gln	Arg	Ala	Glu	Glu	Asn	Ile	Arg	Ser	Leu	740	745	750	
Met	Ser	Thr	Glu	Lys	Thr	Lys	Gly	Phe	Cys	Gln	Leu	Val	Val	Ser	Ser	755	760	765	
Ser	Leu	Arg	Asp	Gly	Met	Ser	His	Leu	Ile	Gln	Ser	Ala	Gly	Leu	Gly	770	775	780	
Gly	Leu	Lys	His	Asn	Thr	Val	Leu	Met	Ala	Trp	Pro	Ala	Ser	Trp	Lys	785	790	795	800
Gln	Glu	Asp	Asn	Pro	Phe	Ser	Trp	Lys	Asn	Phe	Val	Asp	Thr	Val	Arg	805	810	815	
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Trp	Trp	Ile	Val	His	Asp	Gly	Gly	Met	Leu	Met	Leu	Leu	Pro	Phe	Leu	850	855	860	
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Val	Ala	Gln	Val	Asp	Asp	Asn	Ser	Ile	Gln	Met	Lys	Lys	Asp	Leu	Gln	885	890	895	
Met	Phe	Leu	Tyr	His	Leu	Arg	Ile	Ser	Ala	Glu	Val	Glu	Val	Val	Glu	900	905	910	
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His	Thr	Ala	Ala	Ala	Ala	Arg	Thr	Gln	Ala	Pro	Pro	Thr	Pro	Asp	Lys	965	970	975	
Val	Gln	Met	Thr	Trp	Thr	Arg	Glu	Lys	Leu	Ile	Ala	Glu	Lys	Tyr	Arg	980	985	990	
Ser	Arg	Asp	Thr	Ser	Leu	Ser	Gly	Phe	Lys	Asp	Leu	Phe	Ser	Met	Lys	995	1000	1005	
Pro	Asp	Gln	Ser	Asn	Val	Arg	Arg	Met	His	Thr	Ala	Val	Lys	Leu	Asn	1010	1015	1020	
Gly	Val	Val	Xaa	Asn	Lys	Ser	Gln	Asp	Ala	Gln	Leu	Val	Leu	Leu	Asn	1025	1030	1035	1040
Met	Pro	Gly	Pro	Pro	Lys	Asn	Arg	Gln	Gly	Asp	Glu	Asn	Tyr	Met	Glu	1045	1050	1055	

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 tttgcgaggt tccccccact ttttttgttc ttaaaaagaa caaa atg cat cct cca 176  
 Met His Pro Pro  
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 Glu Thr Thr Thr Lys Met Ala Ser Val Arg Phe Met Val Thr Pro Thr  
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 Lys Ile Asp Asp Ile Pro Gly Leu Ser Asp Thr Ser Pro Asp Xaa Ser  
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 Ser Arg Ser Ser Ser Arg Val Arg Phe Ser Ser Arg Glu Ser Val Pro  
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 Glu Thr Ser Arg Ser Glu Pro Met Ser Glu Met Ser Gly Ala Thr Thr  
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tcg ctg gca act gtt gca ctg gat cca ccc agt gac cgg act tct cac 416  
 Ser Leu Ala Thr Val Ala Leu Asp Pro Pro Ser Asp Arg Thr Ser His  
 70 75 80

ccc	cag	gat	gtc	atc	gag	gac	gac	gga	cat	aag	aaa	gct	cga	aat	gct	464
Pro	Gln	Asp	Val	Ile	Glu	Asp	Asp	Gly	His	Lys	Lys	Ala	Arg	Asn	Ala	
85					90					95					100	
tat	ctc	aat	aat	tcc	aat	tat	gaa	gaa	gga	gat	gaa	tat	ttt	gat	aaa	512
Tyr	Leu	Asn	Asn	Ser	Asn	Tyr	Glu	Glu	Gly	Asp	Glu	Tyr	Phe	Asp	Lys	
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Asn	Leu	Ala	Leu	Phe	Glu	Glu	Glu	Met	Asp	Thr	Arg	Pro	Lys	Val	Ser	
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Ser	Leu	Leu	Asn	Arg	Met	Ala	Asn	Tyr	Thr	Asn	Leu	Thr	Gln	Gly	Ala	
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aag	gaa	cat	gaa	gag	gca	gaa	aac	atc	act	gaa	ggg	aaa	aag	aag	ccc	656
Lys	Glu	His	Glu	Glu	Ala	Glu	Asn	Ile	Thr	Glu	Gly	Lys	Lys	Lys	Pro	
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acc	aag	acc	ccc	caa	atg	ggg	acc	ttc	atg	ggg	gtc	tac	ctc	cca	tgt	704
Thr	Lys	Thr	Pro	Gln	Met	Gly	Thr	Phe	Met	Gly	Val	Tyr	Leu	Pro	Cys	
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cta	caa	aat	att	ttt	gga	gtg	atc	ctt	ttt	tta	cgc	ctt	aca	tgg	gtg	752
Leu	Gln	Asn	Ile	Phe	Gly	Val	Ile	Leu	Phe	Leu	Arg	Leu	Thr	Trp	Val	
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gtg	ggc	aca	gct	gga	gtt	ctt	cag	gct	ttt	gca	att	gtc	ctt	atc	tgc	800
Val	Gly	Thr	Ala	Gly	Val	Leu	Gln	Ala	Phe	Ala	Ile	Val	Leu	Ile	Cys	
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tgc	tgc	tgt	aca	atg	ttg	act	gct	atc	tcc	atg	agt	gcc	att	gcc	act	848
Cys	Cys	Cys	Thr	Met	Leu	Thr	Ala	Ile	Ser	Met	Ser	Ala	Ile	Ala	Thr	
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Asn	Gly	Val	Val	Pro	Ala	Gly	Gly	Ser	Tyr	Phe	Met	Ile	Ser	Arg	Ala	
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ctg	ggc	cca	gag	ttt	ggg	ggg	gct	gtt	ggc	ctc	tgc	ttt	tat	ctt	ggg	944
Leu	Gly	Pro	Glu	Phe	Gly	Gly	Ala	Val	Gly	Leu	Cys	Phe	Tyr	Leu	Gly	
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Thr	Thr	Phe	Ala	Ala	Ala	Met	Tyr	Ile	Leu	Gly	Ala	Ile	Glu	Ile	Phe	
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Leu	Val	Tyr	Ile	Val	Pro	Arg	Ala	Ala	Ile	Phe	His	Ser	Asp	Asp	Ala	
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Leu	Lys	Glu	Ser	Ala	Ala	Met	Leu	Asn	Asn	Met	Arg	Val	Tyr	Gly	Thr	
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gct	ttc	ttg	gtc	ctt	atg	gta	tta	gtg	gta	ttt	atc	ggc	gta	cgc	tat	1136
Ala	Phe	Leu	Val	Leu	Met	Val	Leu	Val	Val	Phe	Ile	Gly	Val	Arg	Tyr	
	310					315					320					

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Val Asn Lys Phe Ala Ser Leu Phe Leu Ala Cys Val Ile Val Ser Ile	
325 330 335 340	
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Leu Ala Ile Tyr Ala Gly Ala Ile Lys Ser Ser Phe Ala Pro Pro His	
345 350 355	
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Phe Pro Val Cys Met Leu Gly Asn Arg Thr Leu Ser Ser Arg His Ile	
360 365 370	
gac gtt tgc tct aag acc aag gaa att aac aac atg aca gtc cca tca	1328
Asp Val Cys Ser Lys Thr Lys Glu Ile Asn Asn Met Thr Val Pro Ser	
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Lys Leu Trp Gly Phe Phe Cys Asn Ser Ser Gln Phe Phe Asn Ala Thr	
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Cys Asp Glu Tyr Phe Val His Asn Asn Val Thr Ser Ile Gln Gly Ile	
405 410 415 420	
cct gga ttg gct agt ggt ata att aca gag aat ctt tgg agt aat tac	1472
Pro Gly Leu Ala Ser Gly Ile Ile Thr Glu Asn Leu Trp Ser Asn Tyr	
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Leu Pro Lys Gly Glu Ile Ile Glu Lys Pro Ser Ala Lys Ser Ser Asp	
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Val Leu Gly Ser Leu Asn His Glu Tyr Val Leu Val Asp Ile Thr Thr	
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Ser Phe Thr Xaa Leu Val Gly Ile Phe Phe Pro Ser Val Thr Gly Ile	
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Met Ala Gly Ser Asn Arg Ser Gly Asp Leu Lys Asp Ala Gln Lys Ser	
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Ile Pro Ile Gly Thr Ile Leu Ala Ile Leu Thr Thr Ser Phe Val Tyr	
505 510 515	
tta agc aat gtt gtc ctt ttt ggt gca tgt att gaa ggg gtt gtt ctc	1760
Leu Ser Asn Val Val Leu Phe Gly Ala Cys Ile Glu Gly Val Val Leu	
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Arg Asp Lys Phe Gly Asp Ala Val Lys Gly Asn Leu Val Val Gly Thr	
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Leu Ser Trp Pro Ser Pro Trp Val Ile Val Ile Gly Ser Phe Phe Ser	
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Thr Cys Gly Ala Gly Leu Gln Ser Leu Thr Gly Ala Pro Arg Leu Leu	
565 570 575 580	
caa gct att gcc aag gat aac atc ata ccg ttt ctg agg gtt ttt ggc	1952
Gln Ala Ile Ala Lys Asp Asn Ile Ile Pro Phe Leu Arg Val Phe Gly	
585 590 595	
cac agc aaa gcc aat ggg gaa cct acc tgg gct tta ctt cta act gct	2000
His Ser Lys Ala Asn Gly Glu Pro Thr Trp Ala Leu Leu Leu Thr Ala	
600 605 610	
gcc att gca gag ctt gga ata ctc att gcc tcc ctg gat ctt gtg gcc	2048
Ala Ile Ala Glu Leu Gly Ile Leu Ile Ala Ser Leu Asp Leu Val Ala	
615 620 625	
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Pro Ile Leu Ser Met Phe Phe Leu Met Cys Tyr Leu Phe Val Asn Leu	
630 635 640	
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Ala Cys Ala Leu Gln Thr Leu Leu Arg Thr Pro Asn Trp Arg Pro Arg	
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Leu Ala Leu Met Phe Ile Ser Ser Trp Tyr Tyr Ala Ile Val Ala Met	
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Val Ile Ala Gly Met Ile Tyr Lys Tyr Ile Glu Tyr Gln Gly Ala Glu	
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Lys Glu Trp Gly Asp Gly Ile Arg Gly Leu Ser Leu Ser Ala Ala Arg	
710 715 720	
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Phe Ala Leu Leu Arg Leu Glu Glu Gly Pro Pro His Thr Lys Asn Trp	
725 730 735 740	
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Arg Pro Gln Leu Leu Val Leu Leu Lys Leu Asp Glu Asp Leu His Val	
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Lys His Pro Arg Leu Leu Thr Phe Ala Ser Gln Leu Lys Ala Gly Lys	
760 765 770	
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Gly Leu Thr Ile Val Gly Ser Val Ile Val Gly Asn Phe Leu Glu Asn	
775 780 785	
tac ggt gaa gct tta gct gct gag cag acc ata aag cac cta atg gag	2576
Tyr Gly Glu Ala Leu Ala Ala Glu Gln Thr Ile Lys His Leu Met Glu	
790 795 800	

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Ala Glu Lys Val Lys Gly Phe Cys Gln Leu Val Val Ala Ala Lys Leu	
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Lys His Asn Thr Val Val Met Gly Trp Pro Asn Gly Trp Arg Gln Ser	
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Glu Asp Ala Arg Ala Trp Lys Thr Phe Ile Gly Thr Val Arg Val Thr	
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Thr Ala Ala His Leu Ala Leu Leu Val Ala Lys Asn Ile Ser Phe Phe	
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Pro Ser Asn Val Glu Gln Phe Ser Glu Gly Asn Ile Asp Val Trp Trp	
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Ile Val His Asp Gly Gly Met Leu Met Leu Leu Pro Phe Leu Leu Lys	
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Gln Leu Glu Asp Asn Ser Ile Gln Met Lys Lys Asp Leu Ala Thr Phe	
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Leu Tyr His Leu Arg Ile Glu Ala Glu Val Glu Val Glu Met His	
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gac agt gat ata tca gca tat act tac gag cgc act ttg atg atg gaa	3104
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Gln Arg Ser Gln Met Leu Arg His Met Arg Leu Ser Lys Thr Glu Arg	
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Asp Arg Glu Ala Gln Leu Val Lys Asp Arg Asn Ser Met Leu Arg Leu	
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Thr Ser Ile Gly Ser Asp Glu Asp Glu Glu Thr Glu Thr Tyr Gln Glu	
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Pro Asp Gln Ser Asn Val Arg Arg Met His Thr Ala Val Lys Xaa Asn
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Glu Val Ile Val Asn Lys Ser His Glu Ala Lys Leu Val Leu Leu Asn
1080                1085                1090

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Phe Leu Glu Val Leu Thr Glu Gly Leu Glu Arg Val Leu Leu Val Arg
1110                1115                1120

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Gly Gly Gly Ser Glu Val Ile Thr Ile Tyr Ser
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Gly	Val	Arg	Tyr	Val	Asn	Lys	Phe	Ala	Ser	Leu	Phe	Leu	Ala	Cys	Val
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Phe	Asn	Ala	Thr	Cys	Asp	Glu	Tyr	Phe	Val	His	Asn	Asn	Val	Thr	Ser
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Ile	Gln	Gly	Ile	Pro	Gly	Leu	Ala	Ser	Gly	Ile	Ile	Thr	Glu	Asn	Leu
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545					550					555					560
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Ser Pro Asp Leu Ser Ser Arg Ser Ser Ser Arg Val Arg Phe Ser Ser	
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Arg Glu Ser Val Pro Glu Thr Ser Arg Ser Glu Pro Met Ser Glu Leu	
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Ser Gly Ala Thr Thr Ser Leu Ala Thr Val Ala Leu Asp Pro Ser Ser	
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ttcctcgtgg cagagcaaaa gctgctgctt ttcatttctt gtgcctcctt ttcttgtggc 5688  
 cccaaggatc ccaccaatcc tcattcccc taaatgttaa aagaaaattc cttattgtgg 5748  
 atattaagtt aactgtgaag catattttaca tgctcttttt ccccttggt tttcttttc 5808  
 atcatgtata atttgaatcc agtgatagtc tcacatcttc caaaaaagtc tgcttatgtg 5868  
 atatagaaga gaaatattaa agtagactga aggggaactt gtgaaacatt aagcattgtt 5928  
 ctcaaccgtt taattttattg aaaggagaag ctgctactga gcagctgcta ttcttttgtt 5988  
 tacatagagt ctggttttgt ttgttttgct ctgtgctggg aacataaata aagttttcta 6048  
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 Val Thr Pro Thr Lys Ile Asp Asp Ile Pro Gly Leu Ser Asp Thr Ser  
 20 25 30  
 Pro Asp Leu Ser Ser Arg Ser Ser Arg Val Arg Phe Ser Ser Arg  
 35 40 45  
 Glu Ser Val Pro Glu Thr Ser Arg Ser Glu Pro Met Ser Glu Leu Ser  
 50 55 60  
 Gly Ala Thr Thr Ser Leu Ala Thr Val Ala Leu Asp Pro Ser Ser Asp  
 65 70 75 80  
 Arg Thr Ser Asn Pro Gln Asp Val Thr Glu Asp Asp Gly His Lys Lys  
 85 90 95  
 Ala Arg Asn Ala Tyr Xaa Asn Asn Ser Asn Tyr Glu Glu Gly Asp Glu  
 100 105 110  
 Tyr Phe Asp Lys Asn Leu Ala Leu Phe Glu Glu Glu Met Asp Thr Arg  
 115 120 125

Pro	Lys	Val	Ser	Ser	Leu	Leu	Asn	Arg	Met	Ala	Asn	Tyr	Thr	Asn	Leu
130						135					140				
Thr	Gln	Gly	Ala	Lys	Glu	His	Glu	Glu	Ala	Glu	Asn	Ile	Thr	Glu	Gly
145					150					155					160
Lys	Lys	Lys	Pro	Thr	Lys	Ser	Pro	Gln	Met	Gly	Thr	Phe	Met	Gly	Val
				165					170					175	
Tyr	Leu	Pro	Cys	Leu	Gln	Asn	Ile	Phe	Gly	Val	Ile	Leu	Phe	Leu	Arg
			180					185					190		
Leu	Thr	Trp	Val	Val	Gly	Thr	Ala	Gly	Ile	Leu	Gln	Ala	Phe	Ala	Ile
	195						200					205			
Val	Leu	Ile	Cys	Cys	Cys	Cys	Thr	Met	Leu	Thr	Ala	Ile	Ser	Met	Ser
210						215					220				
Ala	Ile	Ala	Thr	Asn	Gly	Val	Val	Pro	Ala	Gly	Gly	Ser	Tyr	Phe	Met
225					230					235					240
Ile	Ser	Arg	Ala	Leu	Gly	Pro	Glu	Phe	Gly	Gly	Ala	Val	Gly	Leu	Cys
			245						250					255	
Phe	Tyr	Leu	Gly	Thr	Thr	Phe	Ala	Ala	Ala	Met	Tyr	Ile	Leu	Gly	Ala
		260					265						270		
Ile	Glu	Ile	Phe	Leu	Val	Tyr	Ile	Val	Pro	Arg	Ala	Ala	Ile	Phe	Arg
	275						280					285			
Ser	Asp	Asp	Ala	Leu	Lys	Glu	Ser	Ala	Ala	Met	Leu	Asn	Asn	Met	Arg
290						295					300				
Val	Tyr	Gly	Thr	Ala	Phe	Leu	Val	Leu	Met	Val	Leu	Val	Val	Phe	Ile
305					310					315					320
Gly	Val	Arg	Tyr	Val	Asn	Lys	Phe	Ala	Ser	Leu	Phe	Leu	Ala	Cys	Val
				325					330					335	
Ile	Val	Ser	Ile	Leu	Ala	Ile	Tyr	Ala	Gly	Ala	Ile	Lys	Ser	Ser	Phe
		340						345					350		
Ala	Pro	Pro	His	Phe	Pro	Val	Cys	Met	Leu	Gly	Asn	Arg	Thr	Leu	Ser
		355					360					365			
Ser	Arg	His	Leu	Asp	Ile	Cys	Ser	Lys	Thr	Lys	Glu	Val	Asp	Asn	Met
	370					375					380				
Thr	Val	Pro	Ser	Lys	Leu	Trp	Gly	Phe	Phe	Cys	Asn	Ser	Ser	Gln	Phe
385					390					395					400
Phe	Asn	Ala	Thr	Cys	Asp	Glu	Tyr	Phe	Val	His	Asn	Asn	Val	Ile	Ser
				405					410					415	
Ile	Gln	Gly	Ile	Pro	Gly	Leu	Ala	Ser	Gly	Ile	Ile	Thr	Glu	Asn	Leu
			420					425					430		
Trp	Ser	Asn	Tyr	Leu	Pro	Lys	Gly	Glu	Ile	Ile	Glu	Lys	Pro	Ser	Ala
		435					440					445			

Lys	Ser	Ser	Asp	Val	Leu	Gly	Asn	Leu	Asn	His	Glu	Tyr	Val	Leu	Ala	450	455	460
Asp	Ile	Thr	Thr	Ser	Phe	Thr	Leu	Leu	Val	Gly	Ile	Phe	Phe	Pro	Ser	465	470	475
Val	Thr	Gly	Ile	Met	Ala	Gly	Ser	Asn	Arg	Ser	Gly	Asp	Leu	Lys	Asp	485	490	495
Ala	Gln	Lys	Ser	Ile	Pro	Ile	Gly	Thr	Ile	Leu	Ala	Ile	Leu	Thr	Thr	500	505	510
Ser	Phe	Val	Tyr	Leu	Ser	Asn	Val	Val	Leu	Phe	Gly	Ala	Cys	Ile	Glu	515	520	525
Gly	Val	Val	Leu	Arg	Asp	Lys	Phe	Gly	Asp	Ala	Val	Lys	Gly	Asn	Leu	530	535	540
Val	Val	Gly	Thr	Leu	Ser	Trp	Pro	Ser	Pro	Trp	Val	Ile	Val	Ile	Gly	545	550	555
Ser	Phe	Phe	Ser	Thr	Cys	Gly	Ala	Gly	Leu	Gln	Ser	Leu	Thr	Gly	Ala	565	570	575
Pro	Arg	Leu	Leu	Gln	Ala	Ile	Ala	Lys	Asp	Asn	Ile	Ile	Pro	Phe	Leu	580	585	590
Arg	Val	Phe	Gly	His	Ser	Lys	Ala	Asn	Gly	Glu	Pro	Thr	Trp	Ala	Leu	595	600	605
Leu	Leu	Thr	Ala	Ala	Ile	Ala	Glu	Leu	Gly	Ile	Leu	Ile	Ala	Ser	Leu	610	615	620
Asp	Leu	Val	Ala	Pro	Ile	Xaa	Ser	Met	Phe	Phe	Leu	Met	Cys	Tyr	Leu	625	630	635
Phe	Val	Asn	Leu	Ala	Cys	Ala	Leu	Gln	Thr	Leu	Leu	Arg	Thr	Pro	Asn	645	650	655
Trp	Arg	Pro	Arg	Phe	Arg	Tyr	Tyr	His	Trp	Ala	Leu	Ser	Phe	Met	Gly	660	665	670
Met	Ser	Ile	Cys	Leu	Ala	Leu	Met	Phe	Ile	Ser	Ser	Trp	Tyr	Tyr	Ala	675	680	685
Ile	Val	Ala	Met	Val	Ile	Ala	Gly	Met	Ile	Tyr	Lys	Tyr	Ile	Glu	Tyr	690	695	700
Gln	Gly	Ala	Glu	Lys	Glu	Trp	Gly	Asp	Gly	Ile	Arg	Gly	Leu	Ser	Leu	705	710	715
Ser	Ala	Ala	Arg	Phe	Ala	Leu	Leu	Arg	Leu	Glu	Glu	Gly	Pro	Pro	His	725	730	735
Thr	Lys	Asn	Trp	Arg	Pro	Gln	Leu	Leu	Val	Leu	Leu	Lys	Leu	Asp	Glu	740	745	750
Asp	Leu	His	Val	Lys	His	Pro	Arg	Leu	Leu	Thr	Phe	Ala	Ser	Gln	Leu	755	760	765

Lys	Ala	Gly	Lys	Gly	Leu	Thr	Ile	Val	Gly	Ser	Val	Ile	Val	Gly	Asn	770	775	780
Phe	Leu	Glu	Asn	Tyr	Gly	Asp	Ala	Leu	Ala	Ala	Glu	Gln	Thr	Ile	Lys	785	790	795
His	Leu	Met	Glu	Ala	Glu	Lys	Val	Lys	Gly	Phe	Cys	Gln	Leu	Val	Val	805	810	815
Ala	Ala	Lys	Leu	Lys	Glu	Gly	Ile	Ser	His	Leu	Ile	Gln	Ser	Cys	Gly	820	825	830
Leu	Gly	Gly	Met	Lys	His	Asn	Thr	Val	Val	Met	Gly	Trp	Pro	Asn	Gly	835	840	845
Trp	Arg	Gln	Ser	Glu	Asp	Ala	Arg	Ala	Trp	Lys	Thr	Phe	Ile	Gly	Thr	850	855	860
Val	Arg	Val	Thr	Thr	Ala	Ala	His	Leu	Ala	Leu	Leu	Val	Ala	Lys	Asn	865	870	875
Val	Ser	Phe	Phe	Pro	Ser	Asn	Val	Glu	Gln	Phe	Ser	Glu	Gly	Asn	Ile	885	890	895
Asp	Val	Arg	Trp	Ile	Val	His	Asp	Gly	Gly	Met	Leu	Met	Leu	Leu	Pro	900	905	910
Phe	Leu	Leu	Lys	Gln	His	Lys	Val	Trp	Arg	Lys	Cys	Ser	Ile	Arg	Ile	915	920	925
Phe	Thr	Val	Ala	Gln	Leu	Glu	Asp	Asn	Ser	Ile	Gln	Met	Lys	Lys	Asp	930	935	940
Leu	Ala	Thr	Phe	Leu	Tyr	His	Leu	Arg	Ile	Glu	Ala	Glu	Val	Glu	Val	945	950	955
Val	Glu	Met	His	Asp	Ser	Asp	Ile	Ser	Ala	Tyr	Thr	Tyr	Glu	Arg	Thr	965	970	975
Leu	Met	Met	Glu	Gln	Arg	Ser	Gln	Met	Leu	Arg	His	Met	Arg	Leu	Ser	980	985	990
Lys	Thr	Glu	Arg	Asp	Arg	Glu	Ala	Gln	Leu	Val	Lys	Asp	Arg	Asn	Ser	995	1000	1005
Met	Leu	Arg	Leu	Thr	Ser	Ile	Gly	Ser	Asp	Glu	Asp	Glu	Glu	Thr	Glu	1010	1015	1020
Thr	Tyr	Gln	Glu	Lys	Val	His	Met	Thr	Trp	Thr	Lys	Asp	Lys	Tyr	Met	1025	1030	1035
Ala	Ser	Arg	Gly	Gln	Lys	Val	Lys	Ser	Met	Glu	Gly	Phe	Gln	Asp	Leu	1045	1050	1055
Leu	Asn	Met	Arg	Pro	Asp	Gln	Ser	Asn	Val	Arg	Arg	Met	His	Thr	Ala	1060	1065	1070
Val	Lys	Leu	Asn	Glu	Val	Ile	Val	Asn	Lys	Ser	His	Glu	Ala	Lys	Leu	1075	1080	1085

Val Leu Leu Asn Met Pro Gly Pro Pro Arg Asn Pro Glu Gly Asp Glu  
1090 1095 1100

Asn Tyr Met Glu Phe Leu Glu Val Xaa Thr Glu Gly Leu Glu Arg Val  
1105 1110 1115 1120

Leu Leu Val Arg Gly Gly Gly Ser Glu Val Ile Thr Ile Tyr Ser  
1125 1130 1135

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atg gtg aca cca act aag att gat gac att cca ggt ttg tca gac acc 96  
Met Val Thr Pro Thr Lys Ile Asp Asp Ile Pro Gly Leu Ser Asp Thr  
20 25 30  
  
agc ccg gac ntc agc tct cgg tct agt tct cga gta aga ttt agc tcc 144  
Ser Pro Asp Xaa Ser Ser Arg Ser Ser Arg Val Arg Phe Ser Ser  
35 40 45  
  
cga gaa agt gtg cca gaa aca agc cgt agt gag cct atg agc gaa ctg 192  
Arg Glu Ser Val Pro Glu Thr Ser Arg Ser Glu Pro Met Ser Glu Leu  
50 55 60  
  
tct ggg gct act act tct ctg gca act gtt gcc cta gat cct tcc agt 240  
Ser Gly Ala Thr Thr Ser Leu Ala Thr Val Ala Leu Asp Pro Ser Ser  
65 70 75  
  
gac cgg act tct aat ccc cag gat gtt acg gag gac ccg agt cag aac 288  
Asp Arg Thr Ser Asn Pro Gln Asp Val Thr Glu Asp Pro Ser Gln Asn  
80 85 90 95

tcc atc aca ggg gag cac agc cag ctg tta gat gac ggc cat aaa aaa	336
Ser Ile Thr Gly Glu His Ser Gln Leu Leu Asp Asp Gly His Lys Lys	
100 105 110	
gcc cga aat gct tat ctc aat aat tcc aac tat gaa gaa gga gac gaa	384
Ala Arg Asn Ala Tyr Leu Asn Asn Ser Asn Tyr Glu Glu Gly Asp Glu	
115 120 125	
tat ttt gat aaa aat ttg gca ctc ttt gag gaa gaa atg gac acc aga	432
Tyr Phe Asp Lys Asn Leu Ala Leu Phe Glu Glu Glu Met Asp Thr Arg	
130 135 140	
cca aag gtg tct tct ctc ctc aac cgc atg gcc aac tat aca aat ctg	480
Pro Lys Val Ser Ser Leu Leu Asn Arg Met Ala Asn Tyr Thr Asn Leu	
145 150 155	
aca caa gga gca aag gaa cat gaa gag gca gag aac atc act gaa ggg	528
Thr Gln Gly Ala Lys Glu His Glu Glu Ala Glu Asn Ile Thr Glu Gly	
160 165 170 175	
aaa aag aag cct acc aag agc ccc caa atg ggt act ttc atg ggt gtc	576
Lys Lys Lys Pro Thr Lys Ser Pro Gln Met Gly Thr Phe Met Gly Val	
180 185 190	
tac ctc cca tgt cta cag aac atc ttt gga gtg atc ctc ttc ctg cgt	624
Tyr Leu Pro Cys Leu Gln Asn Ile Phe Gly Val Ile Leu Phe Leu Arg	
195 200 205	
ctt acc tgg gta gtg gga aca gct gga atc ctt cag gcc ttt gca att	672
Leu Thr Trp Val Val Gly Thr Ala Gly Ile Leu Gln Ala Phe Ala Ile	
210 215 220	
gtc ctc atc tgc tgc tgc tgt aca atg tta act gcc atc tcc atg agc	720
Val Leu Ile Cys Cys Cys Cys Thr Met Leu Thr Ala Ile Ser Met Ser	
225 230 235	
gcc atc gcc act aac gga gtg gtg cca gct ggg ggc tca tac ttc atg	768
Ala Ile Ala Thr Asn Gly Val Val Pro Ala Gly Gly Ser Tyr Phe Met	
240 245 250 255	
att tcc aga gcc ctg ggc cca gag ttt ggc ggg gct gta ggc ctc tgc	816
Ile Ser Arg Ala Leu Gly Pro Glu Phe Gly Gly Ala Val Gly Leu Cys	
260 265 270	
ttt tat ctt ggc acc aca ttt gca gca gcc atg tat att ctt ggt gcc	864
Phe Tyr Leu Gly Thr Thr Phe Ala Ala Ala Met Tyr Ile Leu Gly Ala	
275 280 285	
att gaa atc ttt ctg gta tac att gtc ccc cga gct gcc atc ttt cgg	912
Ile Glu Ile Phe Leu Val Tyr Ile Val Pro Arg Ala Ala Ile Phe Arg	
290 295 300	
agt gac gat gca ntc aag gag tca gca gct atg ctg aac aac atg cgc	960
Ser Asp Asp Ala Xaa Lys Glu Ser Ala Ala Met Leu Asn Asn Met Arg	
305 310 315	
gtc tat ggt aca gcc ttc ttg gtc ctc atg gtc ttg gtg gta ttc atc	1008
Val Tyr Gly Thr Ala Phe Leu Val Leu Met Val Leu Val Val Phe Ile	
320 325 330 335	

ggc gta cgc tat gtg aat aag ttt gcc tca ctc ttc ctg gcc tgt gta	1056
Gly Val Arg Tyr 340 Val Asn Lys Phe 345 Ala Ser Leu Phe Leu Ala Cys Val 350	
att gtg tcg atc ttg gct atc tat gct ggt gcc atc aag tct tcc ttt	1104
Ile Val Ser Ile Leu Ala Ile Tyr 355 Ala Gly Ala Ile Lys Ser Ser Phe 360 365	
gct cca cca cac ttc ccg gtc tgt atg ctg ggc aac cgt acc ctg tca	1152
Ala Pro Pro His Phe Pro Val Cys Met Leu Gly Asn Arg Thr Leu Ser 370 375 380	
tca aga cac ctt gac att tgc tct aag acc aag gag gtt gac aac atg	1200
Ser Arg His Leu Asp Ile Cys Ser Lys Thr Lys Glu Val Asp Asn Met 385 390 395	
aca gta cca tca aag tta tgg gga ttc ttc tgc aac tcg agt cag ttc	1248
Thr Val Pro Ser Lys Leu Trp Gly Phe Phe Cys Asn Ser Ser Gln Phe 400 405 410 415	
ttt aat gcc acc tgt gat gag tac ttt gtt cac aat aac gtc atc tca	1296
Phe Asn Ala Thr Cys Asp Glu Tyr Phe Val His Asn Asn Val Ile Ser 420 425 430	
atc caa ggc att cca ggg ttg gct agt ggt atc att act gaa aat ctt	1344
Ile Gln Gly Ile Pro Gly Leu Ala Ser Gly Ile Ile Thr Glu Asn Leu 435 440 445	
tgg agt aat tat tta cca aag ggt gag ata att gaa aag cca tca gcc	1392
Trp Ser Asn Tyr Leu Pro Lys Gly Glu Ile Ile Glu Lys Pro Ser Ala 450 455 460	
aag tca tct gat gtc tta ggc aac tta aac cat gaa tat gtt ctt gct	1440
Lys Ser Ser Asp Val Leu Gly Asn Leu Asn His Glu Tyr Val Leu Ala 465 470 475	
gat atc acc acc tcc ttc act ctg ctg gtg ggg atc ttc ttt ccc tcg	1488
Asp Ile Thr Thr Ser Phe Thr Leu Leu Val Gly Ile Phe Phe Pro Ser 480 485 490 495	
gtc aca ggt atc atg gct ggg tca aac aga tct gga gat ctg aaa gat	1536
Val Thr Gly Ile Met Ala Gly Ser Asn Arg Ser Gly Asp Leu Lys Asp 500 505 510	
gcc cag aag tct att ccc att ggg acc atc ctt gcc atc ctg acc aca	1584
Ala Gln Lys Ser Ile Pro Ile Gly Thr Ile Leu Ala Ile Leu Thr Thr 515 520 525	
tcc ttt gtg tat tta agc aat gtt gtc ctt ttt ggt gca tgt att gaa	1632
Ser Phe Val Tyr Leu Ser Asn Val Val Leu Phe Gly Ala Cys Ile Glu 530 535 540	
gga gtc gtt ctc aga gac aaa ttt ggg gat gct gta aaa ggg aat ttg	1680
Gly Val Val Leu Arg Asp Lys Phe Gly Asp Ala Val Lys Gly Asn Leu 545 550 555	
gtt gta ggc acc tta tcc tgg cca tcc ccg tgg gtg atc gtt att ggc	1728
Val Val Gly Thr Leu Ser Trp Pro Ser Pro Trp Val Ile Val Ile Gly 560 565 570 575	

tcc	ttc	ttt	tca	aca	tgt	ggg	gct	ggg	ctg	cag	agc	ctc	aca	ggg	gcg	1776
Ser	Phe	Phe	Ser	Thr	Cys	Gly	Ala	Gly	Leu	Gln	Ser	Leu	Thr	Gly	Ala	
				580					585					590		
cct	cgg	ctg	ctg	cag	gct	atc	gcc	aag	gat	aac	atc	ata	cct	ttc	ctt	1824
Pro	Arg	Leu	Leu	Gln	Ala	Ile	Ala	Lys	Asp	Asn	Ile	Ile	Pro	Phe	Leu	
			595					600					605			
agg	gtt	ttt	ggg	cac	agc	aaa	gct	aat	ggg	gaa	cct	acc	tgg	gct	tta	1872
Arg	Val	Phe	Gly	His	Ser	Lys	Ala	Asn	Gly	Glu	Pro	Thr	Trp	Ala	Leu	
		610					615					620				
ctt	cta	act	gct	gcc	ata	gca	gag	ctg	gga	att	ctc	atc	gcc	tcc	ctg	1920
Leu	Leu	Thr	Ala	Ala	Ile	Ala	Glu	Leu	Gly	Ile	Leu	Ile	Ala	Ser	Leu	
		625				630					635					
gat	ctc	gtg	gcc	cca	att	ctt	tcc	atg	ttt	ttt	ctc	atg	tgt	tac	ctc	1968
Asp	Leu	Val	Ala	Pro	Ile	Leu	Ser	Met	Phe	Phe	Leu	Met	Cys	Tyr	Leu	
640					645					650					655	
ttt	gtg	aac	ttg	gct	tgt	gcc	ttg	caa	aca	ttg	ctg	cga	acc	ccc	aac	2016
Phe	Val	Asn	Leu	Ala	Cys	Ala	Leu	Gln	Thr	Leu	Leu	Arg	Thr	Pro	Asn	
			660					665						670		
tgg	agg	cct	cga	ttc	cgc	tat	tat	cac	tgg	gcc	ctc	tct	ttc	atg	gga	2064
Trp	Arg	Pro	Arg	Phe	Arg	Tyr	Tyr	His	Trp	Ala	Leu	Ser	Phe	Met	Gly	
			675					680					685			
atg	agt	atc	tgt	cta	gct	ctg	atg	ttc	att	tct	tct	tgg	tat	tat	gcc	2112
Met	Ser	Ile	Cys	Leu	Ala	Leu	Met	Phe	Ile	Ser	Ser	Trp	Tyr	Tyr	Ala	
		690					695					700				
att	gta	gct	atg	gta	ata	gct	ggc	atg	atc	tac	aag	tac	att	gaa	tat	2160
Ile	Val	Ala	Met	Val	Ile	Ala	Gly	Met	Ile	Tyr	Lys	Tyr	Ile	Glu	Tyr	
		705				710					715					
caa	ggg	gct	gag	aaa	gaa	tgg	ggg	gat	ggg	atc	cgt	ggg	ctg	tcg	ctc	2208
Gln	Gly	Ala	Glu	Lys	Glu	Trp	Gly	Asp	Gly	Ile	Arg	Gly	Leu	Ser	Leu	
720				725						730					735	
agt	gca	gcc	cgc	ttc	gct	ttg	ctc	cgt	cta	gag	gaa	gga	cct	cct	cac	2256
Ser	Ala	Ala	Arg	Phe	Ala	Leu	Leu	Arg	Leu	Glu	Glu	Gly	Pro	Pro	His	
			740					745					750			
act	aaa	aac	tgg	agg	cct	cag	ctg	ctc	gtc	cta	ctg	aag	ctg	gat	gaa	2304
Thr	Lys	Asn	Trp	Arg	Pro	Gln	Leu	Leu	Val	Leu	Leu	Lys	Leu	Asp	Glu	
			755				760						765			
gat	tta	cac	gtc	aag	cac	cct	cgc	ctc	ctc	acc	ttt	gcc	tcc	cag	ctc	2352
Asp	Leu	His	Val	Lys	His	Pro	Arg	Leu	Leu	Thr	Phe	Ala	Ser	Gln	Leu	
		770					775					780				
aag	gca	gga	aag	gga	ctc	acg	att	gtg	ggc	tct	gtc	atc	gtg	ggg	aac	2400
Lys	Ala	Gly	Lys	Gly	Leu	Thr	Ile	Val	Gly	Ser	Val	Ile	Val	Gly	Asn	
		785				790					795					
ttc	ttg	gag	aac	tat	ggg	gac	gcg	ctc	gcg	gca	gag	cag	acc	att	aag	2448
Phe	Leu	Glu	Asn	Tyr	Gly	Asp	Ala	Leu	Ala	Ala	Glu	Gln	Thr	Ile	Lys	
800					805					810					815	

cac cta atg gag gca gaa aag gta aaa gga ttc tgc caa ttg gtg gtg	2496
His Leu Met Glu Ala Glu Lys Val Lys Gly Phe Cys Gln Leu Val Val	
820 825 830	
gct gcc aag ctg aaa gag ggc att tca cac ctg atc cag tcc tgt ggc	2544
Ala Ala Lys Leu Lys Glu Gly Ile Ser His Leu Ile Gln Ser Cys Gly	
835 840 845	
ntc gga ggc atg aaa cac aac aca gtg gtg atg ggc tgg ccc aat ggc	2592
Xaa Gly Gly Met Lys His Asn Thr Val Val Met Gly Trp Pro Asn Gly	
850 855 860	
tgg cgt cag agt gaa gat gct cgc gct tgg aag act ttc att ggc aca	2640
Trp Arg Gln Ser Glu Asp Ala Arg Ala Trp Lys Thr Phe Ile Gly Thr	
865 870 875	
gta cga gtg aca act gct gcc cat cta gcc ctg ctg gtg gct aaa aat	2688
Val Arg Val Thr Thr Ala Ala His Leu Ala Leu Leu Val Ala Lys Asn	
880 885 890 895	
gtc tcc ttc ttt ccc agc aat gtg gag cag ttt tct gag ggc aac att	2736
Val Ser Phe Phe Pro Ser Asn Val Glu Gln Phe Ser Glu Gly Asn Ile	
900 905 910	
gat gtg cgg tgg att gtg cat gat ggg ggc atg ctg atg cta tta ccg	2784
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Phe Leu Leu Lys Gln His Lys Val Trp Arg Lys Cys Ser Ile Arg Ile	
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Leu Ala Thr Phe Leu Tyr His Leu Arg Ile Glu Ala Glu Val Glu Val	
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Val Glu Met His Asp Ser Asp Ile Ser Ala Tyr Thr Tyr Glu Arg Thr	
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Leu Met Met Glu Gln Arg Ser Gln Met Leu Arg His Met Arg Leu Ser	
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Lys Thr Glu Arg Asp Arg Glu Ala Gln Leu Val Lys Asp Arg Asn Ser	
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Met Leu Arg Leu Thr Ser Ile Gly Ser Asp Glu Asp Glu Glu Thr Glu	
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acg tac cag gag aag gtg cac atg act tgg acc aag gat aaa tac atg	3168
Thr Tyr Gln Glu Lys Val His Met Thr Trp Thr Lys Asp Lys Tyr Met	
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Ala Ser Arg Gly Gln Lys Val Lys Ser Met Glu Gly Phe Gln Asp Leu	
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Leu Asn Met Arg Pro Asp Gln Ser Asn Val Arg Arg Met His Thr Ala	
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Val Lys Leu Asn Glu Val Ile Val Asn Lys Ser His Glu Ala Lys Leu	
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gtt ttg ttg aat atg cca gga cca ccc cgg aac cct gaa ggt gat gaa	3360
Val Leu Leu Asn Met Pro Gly Pro Pro Arg Asn Pro Glu Gly Asp Glu	
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aac tac atg gaa ttt cta gaa gtg ctc act gag gga tta gaa cga gtc	3408
Asn Tyr Met Glu Phe Leu Glu Val Leu Thr Glu Gly Leu Glu Arg Val	
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35 40 45  
Glu Ser Val Pro Glu Thr Ser Arg Ser Glu Pro Met Ser Glu Leu Ser  
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Gly Ala Thr Thr Ser Leu Ala Thr Val Ala Leu Asp Pro Ser Ser Asp  
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Arg Thr Ser Asn Pro Gln Asp Val Thr Glu Asp Pro Ser Gln Asn Ser  
85 90 95  
Ile Thr Gly Glu His Ser Gln Leu Leu Asp Asp Gly His Lys Lys Ala  
100 105 110  
Arg Asn Ala Tyr Leu Asn Asn Ser Asn Tyr Glu Glu Gly Asp Glu Tyr  
115 120 125  
Phe Asp Lys Asn Leu Ala Leu Phe Glu Glu Glu Met Asp Thr Arg Pro  
130 135 140  
Lys Val Ser Ser Leu Leu Asn Arg Met Ala Asn Tyr Thr Asn Leu Thr  
145 150 155 160  
Gln Gly Ala Lys Glu His Glu Glu Ala Glu Asn Ile Thr Glu Gly Lys  
165 170 175  
Lys Lys Pro Thr Lys Ser Pro Gln Met Gly Thr Phe Met Gly Val Tyr  
180 185 190  
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195 200 205  
Thr Trp Val Val Gly Thr Ala Gly Ile Leu Gln Ala Phe Ala Ile Val  
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Leu Ile Cys Cys Cys Cys Thr Met Leu Thr Ala Ile Ser Met Ser Ala  
225 230 235 240  
Ile Ala Thr Asn Gly Val Val Pro Ala Gly Gly Ser Tyr Phe Met Ile  
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Ser	Arg	Ala	Leu	Gly	Pro	Glu	Phe	Gly	Gly	Ala	Val	Gly	Leu	Cys	Phe		
			260					265					270				
Tyr	Leu	Gly	Thr	Thr	Phe	Ala	Ala	Ala	Met	Tyr	Ile	Leu	Gly	Ala	Ile		
		275					280					285					
Glu	Ile	Phe	Leu	Val	Tyr	Ile	Val	Pro	Arg	Ala	Ala	Ile	Phe	Arg	Ser		
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Val	Arg	Tyr	Val	Asn	Lys	Phe	Ala	Ser	Leu	Phe	Leu	Ala	Cys	Val	Ile		
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Val	Ser	Ile	Leu	Ala	Ile	Tyr	Ala	Gly	Ala	Ile	Lys	Ser	Ser	Phe	Ala		
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Pro	Pro	His	Phe	Pro	Val	Cys	Met	Leu	Gly	Asn	Arg	Thr	Leu	Ser	Ser		
	370					375					380						
Arg	His	Leu	Asp	Ile	Cys	Ser	Lys	Thr	Lys	Glu	Val	Asp	Asn	Met	Thr		
385					390					395					400		
Val	Pro	Ser	Lys	Leu	Trp	Gly	Phe	Phe	Cys	Asn	Ser	Ser	Gln	Phe	Phe		
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Asn	Ala	Thr	Cys	Asp	Glu	Tyr	Phe	Val	His	Asn	Asn	Val	Ile	Ser	Ile		
			420					425					430				
Gln	Gly	Ile	Pro	Gly	Leu	Ala	Ser	Gly	Ile	Ile	Thr	Glu	Asn	Leu	Trp		
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Ser	Asn	Tyr	Leu	Pro	Lys	Gly	Glu	Ile	Ile	Glu	Lys	Pro	Ser	Ala	Lys		
	450					455					460						
Ser	Ser	Asp	Val	Leu	Gly	Asn	Leu	Asn	His	Glu	Tyr	Val	Leu	Ala	Asp		
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Ile	Thr	Thr	Ser	Phe	Thr	Leu	Leu	Val	Gly	Ile	Phe	Phe	Pro	Ser	Val		
				485					490					495			
Thr	Gly	Ile	Met	Ala	Gly	Ser	Asn	Arg	Ser	Gly	Asp	Leu	Lys	Asp	Ala		
			500					505					510				
Gln	Lys	Ser	Ile	Pro	Ile	Gly	Thr	Ile	Leu	Ala	Ile	Leu	Thr	Thr	Ser		
		515					520					525					
Phe	Val	Tyr	Leu	Ser	Asn	Val	Val	Leu	Phe	Gly	Ala	Cys	Ile	Glu	Gly		
	530					535					540						
Val	Val	Leu	Arg	Asp	Lys	Phe	Gly	Asp	Ala	Val	Lys	Gly	Asn	Leu	Val		
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Val	Gly	Thr	Leu	Ser	Trp	Pro	Ser	Pro	Trp	Val	Ile	Val	Ile	Gly	Ser		
				565					570					575			

Phe	Phe	Ser	Thr	Cys	Gly	Ala	Gly	Leu	Gln	Ser	Leu	Thr	Gly	Ala	Pro	580	585	590
Arg	Leu	Leu	Gln	Ala	Ile	Ala	Lys	Asp	Asn	Ile	Ile	Pro	Phe	Leu	Arg	595	600	605
Val	Phe	Gly	His	Ser	Lys	Ala	Asn	Gly	Glu	Pro	Thr	Trp	Ala	Leu	Leu	610	615	620
Leu	Thr	Ala	Ala	Ile	Ala	Glu	Leu	Gly	Ile	Leu	Ile	Ala	Ser	Leu	Asp	625	630	635
Leu	Val	Ala	Pro	Ile	Leu	Ser	Met	Phe	Phe	Leu	Met	Cys	Tyr	Leu	Phe	645	650	655
Val	Asn	Leu	Ala	Cys	Ala	Leu	Gln	Thr	Leu	Leu	Arg	Thr	Pro	Asn	Trp	660	665	670
Arg	Pro	Arg	Phe	Arg	Tyr	Tyr	His	Trp	Ala	Leu	Ser	Phe	Met	Gly	Met	675	680	685
Ser	Ile	Cys	Leu	Ala	Leu	Met	Phe	Ile	Ser	Ser	Trp	Tyr	Tyr	Ala	Ile	690	695	700
Val	Ala	Met	Val	Ile	Ala	Gly	Met	Ile	Tyr	Lys	Tyr	Ile	Glu	Tyr	Gln	705	710	715
Gly	Ala	Glu	Lys	Glu	Trp	Gly	Asp	Gly	Ile	Arg	Gly	Leu	Ser	Leu	Ser	725	730	735
Ala	Ala	Arg	Phe	Ala	Leu	Leu	Arg	Leu	Glu	Glu	Gly	Pro	Pro	His	Thr	740	745	750
Lys	Asn	Trp	Arg	Pro	Gln	Leu	Leu	Val	Leu	Leu	Lys	Leu	Asp	Glu	Asp	755	760	765
Leu	His	Val	Lys	His	Pro	Arg	Leu	Leu	Thr	Phe	Ala	Ser	Gln	Leu	Lys	770	775	780
Ala	Gly	Lys	Gly	Leu	Thr	Ile	Val	Gly	Ser	Val	Ile	Val	Gly	Asn	Phe	785	790	795
Leu	Glu	Asn	Tyr	Gly	Asp	Ala	Leu	Ala	Ala	Glu	Gln	Thr	Ile	Lys	His	805	810	815
Leu	Met	Glu	Ala	Glu	Lys	Val	Lys	Gly	Phe	Cys	Gln	Leu	Val	Val	Ala	820	825	830
Ala	Lys	Leu	Lys	Glu	Gly	Ile	Ser	His	Leu	Ile	Gln	Ser	Cys	Gly	Leu	835	840	845
Gly	Gly	Met	Lys	His	Asn	Thr	Val	Val	Met	Gly	Trp	Pro	Asn	Gly	Trp	850	855	860
Arg	Gln	Ser	Glu	Asp	Ala	Arg	Ala	Trp	Lys	Thr	Phe	Ile	Gly	Thr	Val	865	870	875
Arg	Val	Thr	Thr	Ala	Ala	His	Leu	Ala	Leu	Leu	Val	Ala	Lys	Asn	Val	885	890	895

Ser Phe Phe Pro Ser Asn Val Glu Gln Phe Ser Glu Gly Asn Ile Asp  
900 905 910

Val Arg Trp Ile Val His Asp Gly Gly Met Leu Met Leu Leu Pro Phe  
915 920 925

Leu Leu Lys Gln His Lys Val Trp Arg Lys Cys Ser Ile Arg Ile Phe  
930 935 940

Thr Val Ala Gln Leu Glu Asp Asn Ser Ile Gln Met Lys Lys Asp Leu  
945 950 955 960

Ala Thr Phe Leu Tyr His Leu Arg Ile Glu Ala Glu Val Glu Val Val  
965 970 975

Glu Met His Asp Ser Asp Ile Ser Ala Tyr Thr Tyr Glu Arg Thr Leu  
980 985 990

Met Met Glu Gln Arg Ser Gln Met Leu Arg His Met Arg Leu Ser Lys  
995 1000 1005

Thr Glu Arg Asp Arg Glu Ala Gln Leu Val Lys Asp Arg Asn Ser Met  
1010 1015 1020

Leu Arg Leu Thr Ser Ile Gly Ser Asp Glu Asp Glu Glu Thr Glu Thr  
1025 1030 1035 1040

Tyr Gln Glu Lys Val His Met Thr Trp Thr Lys Asp Lys Tyr Met Ala  
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Ser Arg Gly Gln Lys Val Lys Ser Met Glu Gly Phe Gln Asp Leu Leu  
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Asn Met Arg Pro Asp Gln Ser Asn Val Arg Arg Met His Thr Ala Val  
1075 1080 1085

Lys Leu Asn Glu Val Ile Val Asn Lys Ser His Glu Ala Lys Leu Val  
1090 1095 1100

Leu Leu Asn Met Pro Gly Pro Pro Arg Asn Pro Glu Gly Asp Glu Asn  
1105 1110 1115 1120

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Met Pro His Phe Thr Val Thr Lys	
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gta gaa gac cca gag gag ggg gca gct ggc ccc ctc tct cct gag ccc	160
Val Glu Asp Pro Glu Glu Gly Ala Ala Gly Pro Leu Ser Pro Glu Pro	
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Ser Ser Ala Glu Val Lys Ala Arg Ile Gln Asp Pro Gln Glu Pro Asp	
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ccg agt cag aac tcc atc aca ggg gag cac agc cag ctg tta gat gac	256
Pro Ser Gln Asn Ser Ile Thr Gly Glu His Ser Gln Leu Leu Asp Asp	
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Gly His Lys Lys Ala Arg Asn Ala Tyr Xaa Asn Asn Ser Asn Tyr Glu	
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75 80 85	

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90 95 100	

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Tyr Thr Asn Leu Thr Gln Gly Ala Lys Glu His Glu Glu Ala Glu Asn	
105 110 115 120	

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Ile Thr Glu Gly Lys Lys Lys Pro Thr Lys Ser Pro Gln Met Gly Thr	
125 130 135	

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Phe Met Gly Val Tyr Leu Pro Cys Leu Gln Asn Ile Phe Gly Val Ile	
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Leu Phe Leu Arg Leu Thr Trp Val Val Gly Thr Ala Gly Ile Leu Gln	
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Asp Leu Lys Asp Ala Gln Lys Ser Ile Pro Ile Gly Thr Ile Leu Ala	
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Ile Leu Thr Thr Ser Phe Val Tyr Leu Ser Asn Val Val Leu Phe Gly	
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Xaa Thr Gly Ala Pro Arg Leu Leu Gln Ala Ile Ala Lys Asp Asn Ile	
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acc tgg gct tta ctt cta act gct gcc ata gca gag ctg gga att ctc	1840
Thr Trp Ala Leu Leu Leu Thr Ala Ala Ile Ala Glu Leu Gly Ile Leu	
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atc gcc tcc ctg gat ctc gtg gcc cca att ctt tcc atg ttt ttt ctc	1888
Ile Ala Ser Leu Asp Leu Val Ala Pro Ile Leu Ser Met Phe Phe Leu	
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Met Cys Tyr Leu Phe Val Asn Leu Ala Cys Ala Leu Gln Thr Leu Leu	
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cga acc ccc aac tgg agg cct cga ttc cgc tat tat cac tgg gcc ctc	1984
Arg Thr Pro Asn Trp Arg Pro Arg Phe Arg Tyr Tyr His Trp Ala Leu	
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Ser Phe Met Gly Met Ser Ile Cys Leu Ala Leu Met Phe Ile Ser Ser	
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Trp Tyr Tyr Ala Ile Val Ala Met Val Ile Ala Gly Met Ile Tyr Lys	
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Tyr Ile Glu Tyr Gln Gly Ala Glu Lys Glu Trp Gly Asp Gly Ile Arg	
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ggg ctg tgc ctc agt gca gcc cgc ttc gct ttg ctc cgt cta gag gaa	2176
Gly Leu Ser Leu Ser Ala Ala Arg Phe Ala Leu Leu Arg Leu Glu Glu	
685 690 695	
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Gly Pro Pro His Thr Lys Asn Trp Arg Pro Gln Leu Leu Val Leu Leu	
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Lys Leu Asp Glu Asp Leu His Val Lys His Pro Arg Leu Leu Thr Phe	
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gcc tcc cag ctc aag gca gga aag gga ctc acg att gtg ggc tct gtc	2320
Ala Ser Gln Leu Lys Ala Gly Lys Gly Leu Thr Ile Val Gly Ser Val	
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atc gtg ggg aac ttc ttg gag aac tat ggt gac gcg ctc gcg gca gag	2368
Ile Val Gly Asn Phe Leu Glu Asn Tyr Gly Asp Ala Leu Ala Ala Glu	
745 750 755 760	
cag acc att aag cac cta atg gag gca gaa aag gta aaa gga ttc tgc	2416
Gln Thr Ile Lys His Leu Met Glu Ala Glu Lys Val Lys Gly Phe Cys	
765 770 775	
caa ttg gtg gtg gct gcc aag ctg aaa gag ggc att tca cac ctc atc	2464
Gln Leu Val Val Ala Ala Lys Leu Lys Glu Gly Ile Ser His Leu Ile	
780 785 790	
cag tcc tgt ggc ctc gga ggc atg aaa cac aac aca gtg gtg atg ggc	2512
Gln Ser Cys Gly Leu Gly Gly Met Lys His Asn Thr Val Val Met Gly	
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tgg ccc aat ggc tgg cgt cag agt gaa gat gct cgc gct tgg aag act	2560
Trp Pro Asn Gly Trp Arg Gln Ser Glu Asp Ala Arg Ala Trp Lys Thr	
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ttc att ggc aca gta cga gtg aca act gct gcc cat cta gcc ctg ctg	2608
Phe Ile Gly Thr Val Arg Val Thr Thr Ala Ala His Leu Ala Leu Leu	
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Val Ala Lys Asn Val Ser Phe Phe Pro Ser Asn Val Glu Gln Phe Ser	
845 850 855	
gag ggc aac att gat gtg cgg tgg att gtg cat gat ggg ggc atg ctc	2704
Glu Gly Asn Ile Asp Val Arg Trp Ile Val His Asp Gly Gly Met Leu	
860 865 870	
atg cta tta ccg ttc ctg ctg aaa cag cac aag gtt tgg cgg aaa tgc	2752
Met Leu Leu Pro Phe Leu Leu Lys Gln His Lys Val Trp Arg Lys Cys	
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Tyr Glu Arg Thr Leu Met Met Glu Gln Arg Ser Gln Met Leu Arg His	
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Asp Lys Tyr Met Ala Ser Arg Gly Gln Lys Val Lys Ser Met Glu Gly	
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Met His Thr Ala Val Lys Leu Asn Glu Val Ile Val Asn Lys Ser His	
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Glu Ala Lys Leu Val Leu Leu Asn Met Pro Gly Pro Pro Arg Asn Pro	
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gaa ggt gat gaa aac tac atg gaa ttt cta gaa gtg ctc act gag gga	3328
Glu Gly Asp Glu Asn Tyr Met Glu Phe Leu Glu Val Leu Thr Glu Gly	
1065 1070 1075 1080	
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 35 40 45  
 Glu His Ser Gln Leu Leu Asp Asp Gly His Lys Lys Ala Arg Asn Ala  
 50 55 60  
 Tyr Xaa Asn Asn Ser Asn Tyr Glu Glu Gly Asp Glu Tyr Phe Asp Lys  
 65 70 75 80  
 Asn Leu Ala Leu Phe Glu Glu Glu Met Asp Thr Arg Pro Lys Val Ser  
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Ser	Leu	Leu	Asn	Arg	Met	Ala	Asn	Tyr	Thr	Asn	Leu	Thr	Gln	Gly	Ala	
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Lys	Glu	His	Glu	Glu	Ala	Glu	Asn	Ile	Thr	Glu	Gly	Lys	Lys	Lys	Pro	
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Thr	Lys	Ser	Pro	Gln	Met	Gly	Thr	Phe	Met	Gly	Val	Tyr	Leu	Pro	Cys	
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Leu	Gln	Asn	Ile	Phe	Gly	Val	Ile	Leu	Phe	Leu	Arg	Leu	Thr	Trp	Val	
145					150					155					160	
Val	Gly	Thr	Ala	Gly	Ile	Leu	Gln	Ala	Phe	Ala	Ile	Val	Leu	Ile	Cys	
				165					170					175		
Cys	Cys	Cys	Thr	Met	Leu	Thr	Ala	Ile	Ser	Met	Ser	Ala	Ile	Ala	Thr	
			180					185					190			
Asn	Gly	Val	Val	Pro	Ala	Gly	Gly	Ser	Tyr	Phe	Met	Ile	Ser	Arg	Ala	
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Leu	Gly	Pro	Glu	Phe	Gly	Gly	Ala	Val	Gly	Leu	Cys	Phe	Tyr	Leu	Gly	
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Leu	Val	Tyr	Ile	Val	Pro	Arg	Ala	Ala	Ile	Phe	Arg	Ser	Asp	Asp	Ala	
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Leu	Lys	Glu	Ser	Ala	Ala	Met	Leu	Asn	Asn	Met	Arg	Val	Tyr	Gly	Thr	
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Val	Asn	Lys	Phe	Ala	Ser	Leu	Phe	Leu	Ala	Cys	Val	Ile	Val	Ser	Ile	
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Asp	Ile	Cys	Ser	Lys	Thr	Lys	Glu	Val	Asp	Asn	Met	Thr	Val	Pro	Ser	
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Cys	Asp	Glu	Tyr	Phe	Val	His	Asn	Asn	Val	Ile	Ser	Ile	Gln	Gly	Ile	
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Pro	Gly	Leu	Ala	Ser	Gly	Ile	Ile	Thr	Glu	Asn	Leu	Trp	Ser	Asn	Tyr	
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Leu	Pro	Lys	Gly	Glu	Ile	Ile	Glu	Lys	Pro	Ser	Ala	Lys	Ser	Ser	Asp	
				405					410					415		

Val	Leu	Gly	Asn	Leu	Asn	His	Glu	Tyr	Val	Leu	Ala	Asp	Ile	Thr	Thr	420	425	430
Ser	Phe	Thr	Leu	Leu	Val	Gly	Ile	Phe	Phe	Pro	Ser	Val	Thr	Gly	Ile	435	440	445
Met	Ala	Gly	Ser	Asn	Arg	Ser	Gly	Asp	Leu	Lys	Asp	Ala	Gln	Lys	Ser	450	455	460
Ile	Pro	Ile	Gly	Thr	Ile	Leu	Ala	Ile	Leu	Thr	Thr	Ser	Phe	Val	Tyr	465	470	475
Leu	Ser	Asn	Val	Val	Leu	Phe	Gly	Ala	Cys	Ile	Glu	Gly	Val	Val	Leu	485	490	495
Arg	Asp	Lys	Phe	Gly	Asp	Ala	Val	Lys	Gly	Asn	Leu	Val	Val	Gly	Thr	500	505	510
Leu	Ser	Trp	Pro	Ser	Pro	Trp	Val	Ile	Val	Ile	Gly	Ser	Phe	Phe	Ser	515	520	525
Thr	Cys	Gly	Ala	Gly	Leu	Gln	Ser	Xaa	Thr	Gly	Ala	Pro	Arg	Leu	Leu	530	535	540
Gln	Ala	Ile	Ala	Lys	Asp	Asn	Ile	Ile	Pro	Phe	Leu	Arg	Val	Phe	Gly	545	550	555
His	Ser	Lys	Ala	Asn	Gly	Glu	Pro	Thr	Trp	Ala	Leu	Leu	Leu	Thr	Ala	565	570	575
Ala	Ile	Ala	Glu	Leu	Gly	Ile	Leu	Ile	Ala	Ser	Leu	Asp	Leu	Val	Ala	580	585	590
Pro	Ile	Leu	Ser	Met	Phe	Phe	Leu	Met	Cys	Tyr	Leu	Phe	Val	Asn	Leu	595	600	605
Ala	Cys	Ala	Leu	Gln	Thr	Leu	Leu	Arg	Thr	Pro	Asn	Trp	Arg	Pro	Arg	610	615	620
Phe	Arg	Tyr	Tyr	His	Trp	Ala	Leu	Ser	Phe	Met	Gly	Met	Ser	Ile	Cys	625	630	635
Leu	Ala	Leu	Met	Phe	Ile	Ser	Ser	Trp	Tyr	Tyr	Ala	Ile	Val	Ala	Met	645	650	655
Val	Ile	Ala	Gly	Met	Ile	Tyr	Lys	Tyr	Ile	Glu	Tyr	Gln	Gly	Ala	Glu	660	665	670
Lys	Glu	Trp	Gly	Asp	Gly	Ile	Arg	Gly	Leu	Ser	Leu	Ser	Ala	Ala	Arg	675	680	685
Phe	Ala	Leu	Leu	Arg	Leu	Glu	Glu	Gly	Pro	Pro	His	Thr	Lys	Asn	Trp	690	695	700
Arg	Pro	Gln	Leu	Leu	Val	Leu	Leu	Lys	Leu	Asp	Glu	Asp	Leu	His	Val	705	710	715
Lys	His	Pro	Arg	Leu	Leu	Thr	Phe	Ala	Ser	Gln	Leu	Lys	Ala	Gly	Lys	725	730	735

Gly	Leu	Thr	Ile	Val	Gly	Ser	Val	Ile	Val	Gly	Asn	Phe	Leu	Glu	Asn	740	745	750
Tyr	Gly	Asp	Ala	Leu	Ala	Ala	Glu	Gln	Thr	Ile	Lys	His	Leu	Met	Glu	755	760	765
Ala	Glu	Lys	Val	Lys	Gly	Phe	Cys	Gln	Leu	Val	Val	Ala	Ala	Lys	Leu	770	775	780
Lys	Glu	Gly	Ile	Ser	His	Leu	Ile	Gln	Ser	Cys	Gly	Leu	Gly	Gly	Met	785	790	795
Lys	His	Asn	Thr	Val	Val	Met	Gly	Trp	Pro	Asn	Gly	Trp	Arg	Gln	Ser	805	810	815
Glu	Asp	Ala	Arg	Ala	Trp	Lys	Thr	Phe	Ile	Gly	Thr	Val	Arg	Val	Thr	820	825	830
Thr	Ala	Ala	His	Leu	Ala	Leu	Leu	Val	Ala	Lys	Asn	Val	Ser	Phe	Phe	835	840	845
Pro	Ser	Asn	Val	Glu	Gln	Phe	Ser	Glu	Gly	Asn	Ile	Asp	Val	Arg	Trp	850	855	860
Ile	Val	His	Asp	Gly	Gly	Met	Leu	Met	Leu	Leu	Pro	Phe	Leu	Leu	Lys	865	870	875
Gln	His	Lys	Val	Trp	Arg	Lys	Cys	Ser	Ile	Arg	Ile	Phe	Thr	Val	Ala	885	890	895
Gln	Leu	Glu	Asp	Asn	Ser	Ile	Gln	Met	Lys	Lys	Asp	Leu	Ala	Thr	Phe	900	905	910
Leu	Tyr	His	Leu	Arg	Ile	Glu	Ala	Glu	Val	Glu	Val	Val	Glu	Met	His	915	920	925
Asp	Ser	Asp	Ile	Ser	Ala	Tyr	Thr	Tyr	Glu	Arg	Thr	Leu	Met	Met	Glu	930	935	940
Gln	Arg	Ser	Gln	Met	Leu	Arg	His	Met	Arg	Leu	Ser	Lys	Thr	Glu	Arg	945	950	955
Asp	Arg	Glu	Ala	Gln	Leu	Val	Lys	Asp	Arg	Asn	Ser	Met	Xaa	Arg	Leu	965	970	975
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Lys	Val	His	Met	Thr	Trp	Thr	Lys	Asp	Lys	Tyr	Met	Ala	Ser	Arg	Gly	995	1000	1005
Gln	Lys	Val	Lys	Ser	Met	Glu	Gly	Phe	Gln	Asp	Leu	Leu	Asn	Met	Arg	1010	1015	1020
Pro	Asp	Gln	Ser	Asn	Val	Arg	Arg	Met	His	Thr	Ala	Val	Lys	Leu	Asn	1025	1030	1035
Glu	Val	Ile	Val	Asn	Lys	Ser	His	Glu	Ala	Lys	Leu	Val	Leu	Leu	Asn	1045	1050	1055

Met Pro Gly Pro Pro Arg Asn Pro Glu Gly Asp Glu Asn Tyr Met Glu  
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Pro Gly Asp Gly Asn Pro Lys Glu Ser Ser Pro Phe Ile Asn Ser Thr  
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Asp Thr Glu Lys Gly Lys Glu Tyr Asp Gly Lys Asn Met Ala Leu Phe  
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Gly Val Ile Leu Phe Leu Arg Xaa Thr Trp Val Val Gly Ile Ala Gly	
115 120 125	
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Ile Met Glu Ser Phe Cys Met Val Phe Ile Cys Cys Ser Cys Thr Met	
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Pro Ala Met Ala Ile Phe Lys Ala Glu Asp Ala Ser Gly Glu Ala Ala	
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Ala Met Leu Asn Asn Met Arg Val Tyr Gly Thr Cys Val Leu Thr Cys	
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Gly Val Ile Lys Ser Ala Phe Asp Pro Pro Asn Phe Pro Ile Cys Leu	
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Tyr Tyr His Trp Thr Leu Ser Phe Leu Gly Met Ser Leu Cys Leu Ala	
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Lys Val Lys Gly Phe Cys Gln Val Val Ile Ser Ser Asn Leu Arg Asp	
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His Asp Gly Gly Met Leu Met Leu Leu Pro Phe Leu Leu Arg His His	
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Arg	Asn	Asn	Val	Thr	Glu	Ile	Gln	Gly	Ile	Pro	Gly	Ala	Ala	Ser	Gly	340	345	350
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Val	Glu	Arg	Ser	Gly	Met	Thr	Ser	Val	Gly	Leu	Ala	Asp	Gly	Thr	Pro	370	375	380
Ile	Asp	Met	Asp	His	Pro	Tyr	Val	Phe	Ser	Asp	Met	Thr	Ser	Tyr	Phe	385	390	395
Thr	Leu	Leu	Val	Gly	Ile	Tyr	Phe	Pro	Ser	Val	Thr	Gly	Ile	Met	Ala	405	410	415
Gly	Ser	Asn	Arg	Ser	Gly	Asp	Leu	Arg	Asp	Ala	Gln	Lys	Ser	Ile	Pro	420	425	430
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Lys	Phe	Gly	Glu	Ala	Val	Asn	Gly	Asn	Leu	Val	Val	Gly	Thr	Leu	Ala	465	470	475
Trp	Pro	Ser	Pro	Trp	Val	Ile	Val	Ile	Gly	Ser	Phe	Phe	Ser	Thr	Cys	485	490	495
Gly	Ala	Gly	Leu	Gln	Ser	Leu	Thr	Gly	Ala	Pro	Arg	Leu	Leu	Gln	Ala	500	505	510
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Cys	Glu	Ile	Gly	Ile	Leu	Ile	Ala	Ser	Leu	Asp	Glu	Val	Ala	Pro	Ile	545	550	555
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 Ala Asp Gly Ala Gly Asp Glu Ala Ala Glu Arg Thr Glu Glu Pro Glu  
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tct ccc gag agc gtg gat caa acc tcc cct acg ccg gga gat gga aac 207  
 Ser Pro Glu Ser Val Asp Gln Thr Ser Pro Thr Pro Gly Asp Gly Asn  
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ccc agg gaa aac agc cct ttc atc aat aat gtg gag gtg gaa aga gag 255  
 Pro Arg Glu Asn Ser Pro Phe Ile Asn Asn Val Glu Val Glu Arg Glu  
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 Ser Tyr Phe Glu Gly Lys Asn Met Ala Xaa Phe Glu Glu Glu Met Asp  
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 Ser Asn Pro Met Val Ser Ser Leu Leu Asn Lys Leu Ala Asn Tyr Thr  
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 Asn Leu Ser Gln Gly Val Val Glu His Glu Glu Asp Glu Asp Ser Arg  
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agg cga gag gtc aag gcc cca cgc atg ggc acc ttc atc gga gtc tac 447  
 Arg Arg Glu Val Lys Ala Pro Arg Met Gly Thr Phe Ile Gly Val Tyr  
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ctg ccg tgc ctg cag aac atc ttg ggt gtt atc ctt ttc ctg cgt ctg 495  
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acc tgg att gtg ggg gca gct ggt gtt atg gag tcc ttc ntc att gtg 543  
 Thr Trp Ile Val Gly Ala Ala Gly Val Met Glu Ser Phe Xaa Ile Val  
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gcc atg tgc tgc acc tgt aca atg ctg aca gcc atc tcc atg agc gcc 591  
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atc gct acc aac ggc gtg gtc cca gcg gga ggc tcg tac tac atg atc 639  
 Ile Ala Thr Asn Gly Val Val Pro Ala Gly Gly Ser Tyr Tyr Met Ile  
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Tyr	Leu	Gly	Thr	Thr	Phe	Ala	Gly	Ala	Met	Tyr	Ile	Leu	Gly	Thr	Ile	
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Glu	Thr	Ala	Asp	Gly	Glu	Ala	Ala	Ala	Leu	Leu	Asn	Asn	Met	Arg	Val	
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Tyr	Gly	Ser	Cys	Ala	Leu	Ala	Leu	Met	Ala	Val	Val	Val	Phe	Val	Gly	
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Val	Lys	Tyr	Val	Asn	Lys	Leu	Ala	Leu	Val	Phe	Leu	Ala	Cys	Val	Val	
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Leu	Ser	Ile	Leu	Ala	Ile	Tyr	Ala	Gly	Val	Ile	Lys	Thr	Ala	Phe	Ala	
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cca	cct	gac	atc	ccg	gtc	tgc	ctt	cta	ggg	aac	cgc	acg	ctg	gca	aat	1023
Pro	Pro	Asp	Ile	Pro	Val	Cys	Leu	Leu	Gly	Asn	Arg	Thr	Leu	Ala	Asn	
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Arg	Asn	Phe	Asp	Thr	Cys	Ala	Lys	Met	Gln	Val	Val	Ser	Asn	Gly	Thr	
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Val	Thr	Thr	Ala	Leu	Trp	Arg	Leu	Phe	Cys	Asn	Gly	Ser	Ser	Leu	Gly	
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Thr	Tyr	Ser	Asp	Lys	Gly	Ala	Phe	Val	Glu	Lys	Lys	Gly	Val	Ser	Ser	
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Val	Pro	Val	Ser	Glu	Glu	Ser	Arg	Pro	Gly	Gly	Leu	Pro	Tyr	Val	Leu	
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Thr	Asp	Ile	Met	Thr	Tyr	Phe	Thr	Met	Leu	Val	Gly	Ile	Tyr	Phe	Pro	
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Asp Ala Gln Lys Ser Ile Pro Thr Gly Thr Ile Leu Ala Ile Val Thr	
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Leu Asp Ser Val Ala Pro Ile Leu Ser Met Phe Phe Xaa Met Cys Tyr	
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Asn Trp Arg Pro Arg Phe Lys Phe Tyr His Trp Thr Leu Ser Phe Leu	
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Gly Met Ser Leu Cys Leu Ala Leu Met Phe Ile Cys Ser Trp Tyr Tyr	
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Ala Xaa Phe Ala Met Leu Ile Ala Gly Cys Ile Tyr Lys Tyr Ile Glu	
640 645 650	
tac cgc ggg gct gag aag gag tgg ggg gat ggc atc agg ggc ctg tca	2079
Tyr Arg Gly Ala Glu Lys Glu Trp Gly Asp Gly Ile Arg Gly Leu Ser	
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cat acc aag aac tgg agg ccc cag gtg ttg gtg atg ctg aac ctg gac His Thr Lys Asn Trp Arg Pro Gln Val Leu Val Met Leu Asn Leu Asp 690 695 700	2175
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Leu	Gly	Pro	Glu	Phe	Gly	Gly	Ala	Val	Gly	Leu	Cys	Phe	Tyr	Leu	Gly
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Cys	Ala	Leu	Ala	Leu	Met	Ala	Val	Val	Val	Phe	Val	Gly	Val	Lys	Tyr
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Val	Asn	Lys	Leu	Ala	Leu	Val	Phe	Leu	Ala	Cys	Val	Val	Leu	Ser	Ile
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Asp	Thr	Cys	Ala	Lys	Met	Gln	Val	Val	Ser	Asn	Gly	Thr	Val	Thr	Thr
				325					330					335	
Ala	Leu	Trp	Arg	Leu	Phe	Cys	Asn	Gly	Ser	Ser	Leu	Gly	Ala	Thr	Cys
			340					345					350		
Asp	Glu	Tyr	Phe	Ala	Gln	Asn	Asn	Val	Thr	Glu	Ile	Gln	Gly	Ile	Pro
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Gly	Val	Ala	Ser	Gly	Val	Phe	Leu	Asp	Asn	Leu	Trp	Ser	Thr	Tyr	Ser
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Asp	Lys	Gly	Ala	Phe	Val	Glu	Lys	Lys	Gly	Val	Ser	Ser	Val	Pro	Val
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Ser	Glu	Glu	Ser	Arg	Pro	Gly	Gly	Leu	Pro	Tyr	Val	Leu	Thr	Asp	Ile
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Met	Thr	Tyr	Phe	Thr	Met	Leu	Val	Gly	Ile	Tyr	Phe	Pro	Ser	Val	Thr
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Gly	Ile	Met	Ala	Gly	Ser	Asn	Arg	Ser	Gly	Asp	Leu	Lys	Asp	Ala	Gln
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Lys	Ser	Ile	Pro	Thr	Gly	Thr	Ile	Leu	Ala	Ile	Val	Thr	Thr	Ser	Phe
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Val	Leu	Arg	Asp	Lys	Phe	Gly	Glu	Ala	Leu	Gln	Gly	Asn	Leu	Val	Ile
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Gly	Met	Leu	Ala	Trp	Pro	Ser	Pro	Trp	Val	Ile	Val	Ile	Gly	Ser	Phe
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Phe	Ser	Thr	Cys	Gly	Ala	Gly	Leu	Gln	Ser	Leu	Thr	Gly	Ala	Pro	Arg
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Thr	Ala	Leu	Ile	Cys	Glu	Thr	Gly	Ile	Leu	Ile	Ala	Ser	Leu	Asp	Ser
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Val	Ala	Pro	Ile	Leu	Ser	Met	Phe	Phe	Xaa	Met	Cys	Tyr	Met	Phe	Val
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Asn	Leu	Ala	Cys	Ala	Val	Gln	Thr	Leu	Leu	Arg	Thr	Pro	Asn	Trp	Arg
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Ala	Glu	Lys	Glu	Trp	Gly	Asp	Gly	Ile	Arg	Gly	Leu	Ser	Leu	Asn	Ala
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Ala	Arg	Tyr	Ala	Leu	Leu	Arg	Val	Glu	His	Gly	Pro	Pro	His	Thr	Lys
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Met	Ser	Ala	Glu	Lys	Thr	Lys	Gly	Phe	Cys	Gln	Leu	Val	Val	Ser	Ser
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His Thr Thr Ala Thr Ala Arg Thr Gln Ala Pro Pro Thr Pro Asp Lys  
965 970 975

Val Gln Met Thr Trp Thr Lys Glu Lys Leu Ile Ala Glu Lys His Arg  
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Asn Lys Asp Thr Gly Pro Ser Gly Phe Lys Asp Leu Phe Ser Leu Lys  
995 1000 1005

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 Met His Pro Pro  
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 Lys Ile Asp Asp Ile Pro Gly Leu Ser Asp Thr Ser Pro Asp Xaa Ser  
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 Ser Arg Ser Ser 40 Phe Ser Ser Arg Glu Ser Val Pro  
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 Ser Leu Ala Thr Val Ala Leu Asp Pro Pro Ser Asp Arg Thr Ser His  
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ccc cag gat gtc atc gag gac ctg agt cag aac tcc atc aca ggg gaa 464  
 Pro Gln Asp Val Ile Glu Asp Leu Ser Gln Asn Ser Ile Thr Gly Glu  
 85 90 95 100

cac agc caa ctg tta gac gac gga cat aag aaa gct cga aat gct tat 512  
 His Ser Gln Leu Leu Asp Asp Gly His Lys Lys Ala Arg Asn Ala Tyr  
 105 110 115

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Glu His Glu Glu Ala Glu Asn Ile Thr Glu Gly Lys Lys Lys Pro Thr	
165 170 175 180	
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Lys Thr Pro Gln Met Gly Thr Phe Met Gly Val Tyr Leu Pro Cys Leu	
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Gly Thr Ala Gly Val Leu Gln Ala Phe Ala Ile Val Leu Ile Cys Cys	
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Cys Cys Thr Met Leu Thr Ala Ile Ser Met Ser Ala Ile Ala Thr Asn	
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Gly Val Val Pro Ala Gly Gly Ser Tyr Phe Met Ile Ser Arg Ala Leu	
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Gly Pro Glu Phe Gly Gly Ala Val Gly Leu Cys Phe Tyr Leu Gly Thr	
265 270 275	
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Thr Phe Ala Ala Ala Met Tyr Ile Leu Gly Ala Ile Glu Ile Phe Leu	
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Val Tyr Ile Val Pro Arg Ala Ala Ile Phe His Ser Asp Asp Ala Leu	
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Lys Glu Ser Ala Ala Met Leu Asn Asn Met Arg Val Tyr Gly Thr Ala	
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Phe Leu Val Leu Met Val Leu Val Val Phe Ile Gly Val Arg Tyr Val	
325 330 335 340	
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Asn Lys Phe Ala Ser Xaa Phe Leu Ala Cys Val Ile Val Ser Ile Leu	
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Ala Ile Tyr Ala Gly Ala Ile Lys Ser Ser Phe Ala Pro Pro His Phe	
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Pro Val Cys Met Leu Gly Asn Arg Thr Leu Ser Ser Arg His Ile Asp	
375 380 385	
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Val Cys Ser Lys Thr Lys Glu Ile Asn Asn Met Thr Val Pro Ser Lys	
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ccc aag gga gag atc atc gaa aag cct tca gcc aaa tct tct gat gtc	1568
Pro Lys Gly Glu Ile Ile Glu Lys Pro Ser Ala Lys Ser Ser Asp Val	
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Leu Gly Ser Leu Asn His Glu Tyr Val Leu Val Asp Ile Thr Thr Ser	
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Phe Thr Leu Leu Val Gly Ile Phe Phe Pro Ser Val Thr Gly Ile Met	
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Pro Ile Gly Thr Ile Leu Ala Ile Leu Thr Thr Ser Phe Val Tyr Leu	
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Ser Asn Val Val Leu Phe Gly Ala Cys Ile Glu Gly Val Val Leu Arg	
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Asp Lys Phe Gly Asp Ala Val Lys Gly Asn Leu Val Val Gly Thr Leu	
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Ser Trp Pro Ser Pro Trp Val Ile Val Ile Gly Ser Phe Phe Ser Thr	
565 570 575 580	
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Cys Gly Ala Gly Leu Gln Ser Leu Thr Gly Ala Pro Arg Leu Leu Gln	
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Ala Ile Ala Lys Asp Asn Ile Ile Pro Phe Leu Arg Val Phe Gly His	
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Ser Lys Ala Asn Gly Glu Pro Thr Trp Ala Leu Leu Leu Thr Ala Ala	
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Ile Ala Glu Leu Gly Ile Leu Ile Ala Ser Leu Asp Leu Val Ala Pro	
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Cys Ala Leu Gln Thr Leu Leu Arg Thr Pro Asn Trp Arg Pro Arg Phe	
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Ala Leu Met Phe Ile Ser Ser Trp Tyr Tyr Ala Ile Val Ala Met Val	
695 700 705	
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Ile Ala Gly Met Ile Tyr Lys Tyr Ile Glu Tyr Gln Gly Ala Glu Lys	
710 715 720	
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Glu Trp Gly Asp Gly Ile Arg Gly Leu Ser Leu Ser Ala Ala Arg Phe	
725 730 735 740	
gct ttg ctt cga ttg gag gaa gga cct cca cac act aaa aac tgg agg	2432
Ala Leu Leu Arg Leu Glu Glu Gly Pro Pro His Thr Lys Asn Trp Arg	
745 750 755	
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Pro Gln Leu Leu Val Leu Leu Lys Leu Asp Glu Asp Leu His Val Lys	
760 765 770	
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His Pro Arg Leu Leu Thr Phe Ala Ser Gln Leu Lys Ala Gly Lys Gly	
775 780 785	
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Xaa Thr Ile Val Gly Ser Val Ile Val Gly Asn Phe Leu Glu Asn Tyr	
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Gly Glu Ala Leu Ala Ala Glu Gln Thr Ile Lys His Leu Met Glu Ala	
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Glu Lys Val Lys Gly Phe Cys Gln Leu Val Val Ala Ala Lys Leu Arg	
825 830 835	
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Glu Gly Ile Ser His Leu Ile Gln Ser Cys Gly Leu Gly Gly Met Lys	
840 845 850	
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His Asn Thr Val Val Met Gly Trp Pro Asn Gly Trp Arg Gln Ser Glu	
855 860 865	
gat gcc cgc gct tgg aag act ttt att ggc aca gtt cga gtg aca act	2816
Asp Ala Arg Ala Trp Lys Thr Phe Ile Gly Thr Val Arg Val Thr Thr	
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Ser Asn Val Glu Gln Phe Ser Glu Gly Asn Ile Asp Val Trp Trp Ile	
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Val His Asp Gly Gly Met Leu Met Leu Leu Pro Phe Leu Leu Lys Gln	
920 925 930	
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His Lys Val Trp Arg Lys Cys Ser Ile Arg Ile Phe Thr Val Ala Gln	
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Leu Glu Asp Asn Ser Ile Gln Met Lys Lys Asp Leu Ala Thr Phe Leu	
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tat cac tta cgc att gag gcg gag gta gaa gtg gtg gag atg cat gac	3104
Tyr His Leu Arg Ile Glu Ala Glu Val Glu Val Val Glu Met His Asp	
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 1145 1150

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Glu	Ser	Val	Pro	Glu	Thr	Ser	Arg	Ser	Glu	Pro	Met	Ser	Glu	Met	Ser	50	55	60
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Arg	Thr	Ser	His	Pro	Gln	Asp	Val	Ile	Glu	Asp	Leu	Ser	Gln	Asn	Ser	85	90	95
Ile	Thr	Gly	Glu	His	Ser	Gln	Leu	Leu	Asp	Asp	Gly	His	Lys	Lys	Ala	100	105	110
Arg	Asn	Ala	Tyr	Leu	Asn	Asn	Ser	Asn	Tyr	Glu	Glu	Gly	Asp	Glu	Tyr	115	120	125
Phe	Asp	Lys	Asn	Leu	Ala	Leu	Phe	Glu	Glu	Glu	Met	Asp	Thr	Arg	Pro	130	135	140
Lys	Val	Ser	Ser	Leu	Leu	Asn	Arg	Met	Ala	Asn	Tyr	Thr	Asn	Leu	Thr	145	150	155
Gln	Gly	Ala	Lys	Glu	His	Glu	Glu	Ala	Glu	Asn	Ile	Thr	Glu	Gly	Lys	165	170	175
Lys	Lys	Pro	Thr	Lys	Thr	Pro	Gln	Met	Gly	Thr	Phe	Met	Gly	Val	Tyr	180	185	190
Leu	Pro	Cys	Leu	Gln	Asn	Ile	Phe	Gly	Val	Ile	Leu	Phe	Leu	Arg	Leu	195	200	205
Thr	Trp	Val	Val	Gly	Thr	Ala	Gly	Val	Leu	Gln	Ala	Phe	Ala	Ile	Val	210	215	220
Leu	Ile	Cys	Cys	Cys	Cys	Thr	Met	Leu	Thr	Ala	Ile	Ser	Met	Ser	Ala	225	230	235
Ile	Ala	Thr	Asn	Gly	Val	Val	Pro	Ala	Gly	Gly	Ser	Tyr	Phe	Met	Ile	245	250	255
Ser	Arg	Ala	Leu	Gly	Pro	Glu	Phe	Gly	Gly	Ala	Val	Gly	Leu	Cys	Phe	260	265	270
Tyr	Leu	Gly	Thr	Thr	Phe	Ala	Ala	Ala	Met	Tyr	Ile	Leu	Gly	Ala	Ile	275	280	285
Glu	Ile	Phe	Leu	Val	Tyr	Ile	Val	Pro	Arg	Ala	Ala	Ile	Phe	His	Ser	290	295	300
Asp	Asp	Ala	Leu	Lys	Glu	Ser	Ala	Ala	Met	Leu	Asn	Asn	Met	Arg	Val	305	310	315
Tyr	Gly	Thr	Ala	Phe	Leu	Val	Leu	Met	Val	Leu	Val	Val	Phe	Ile	Gly	325	330	335
Val	Arg	Tyr	Val	Asn	Lys	Phe	Ala	Ser	Xaa	Phe	Leu	Ala	Cys	Val	Ile	340	345	350
Val	Ser	Ile	Leu	Ala	Ile	Tyr	Ala	Gly	Ala	Ile	Lys	Ser	Ser	Phe	Ala	355	360	365

Pro	Pro	His	Phe	Pro	Val	Cys	Met	Leu	Gly	Asn	Arg	Thr	Leu	Ser	Ser	370	375	380	
Arg	His	Ile	Asp	Val	Cys	Ser	Lys	Thr	Lys	Glu	Ile	Asn	Asn	Met	Thr	385	390	395	400
Val	Pro	Ser	Lys	Leu	Trp	Gly	Phe	Phe	Cys	Asn	Ser	Ser	Gln	Phe	Phe	405	410	415	
Asn	Ala	Thr	Cys	Asp	Glu	Tyr	Phe	Val	His	Asn	Asn	Val	Thr	Ser	Ile	420	425	430	
Gln	Gly	Ile	Pro	Gly	Leu	Ala	Ser	Gly	Ile	Ile	Thr	Glu	Asn	Leu	Trp	435	440	445	
Ser	Asn	Tyr	Leu	Pro	Lys	Gly	Glu	Ile	Ile	Glu	Lys	Pro	Ser	Ala	Lys	450	455	460	
Ser	Ser	Asp	Val	Leu	Gly	Ser	Leu	Asn	His	Glu	Tyr	Val	Leu	Val	Asp	465	470	475	480
Ile	Thr	Thr	Ser	Phe	Thr	Leu	Leu	Val	Gly	Ile	Phe	Phe	Pro	Ser	Val	485	490	495	
Thr	Gly	Ile	Met	Ala	Gly	Ser	Asn	Arg	Ser	Gly	Asp	Leu	Lys	Asp	Ala	500	505	510	
Gln	Lys	Ser	Ile	Pro	Ile	Gly	Thr	Ile	Leu	Ala	Ile	Leu	Thr	Thr	Ser	515	520	525	
Phe	Val	Tyr	Leu	Ser	Asn	Val	Val	Leu	Phe	Gly	Ala	Cys	Ile	Glu	Gly	530	535	540	
Val	Val	Leu	Arg	Asp	Lys	Phe	Gly	Asp	Ala	Val	Lys	Gly	Asn	Leu	Val	545	550	555	560
Val	Gly	Thr	Leu	Ser	Trp	Pro	Ser	Pro	Trp	Val	Ile	Val	Ile	Gly	Ser	565	570	575	
Phe	Phe	Ser	Thr	Cys	Gly	Ala	Gly	Leu	Gln	Ser	Leu	Thr	Gly	Ala	Pro	580	585	590	
Arg	Leu	Leu	Gln	Ala	Ile	Ala	Lys	Asp	Asn	Ile	Ile	Pro	Phe	Leu	Arg	595	600	605	
Val	Phe	Gly	His	Ser	Lys	Ala	Asn	Gly	Glu	Pro	Thr	Trp	Ala	Leu	Leu	610	615	620	
Leu	Thr	Ala	Ala	Ile	Ala	Glu	Leu	Gly	Ile	Leu	Ile	Ala	Ser	Leu	Asp	625	630	635	640
Leu	Val	Ala	Pro	Ile	Leu	Ser	Met	Phe	Phe	Leu	Met	Cys	Tyr	Leu	Phe	645	650	655	
Val	Asn	Leu	Ala	Cys	Ala	Leu	Gln	Thr	Leu	Leu	Arg	Thr	Pro	Asn	Trp	660	665	670	
Arg	Pro	Arg	Phe	Arg	Tyr	Tyr	His	Trp	Ala	Leu	Ser	Phe	Met	Gly	Met	675	680	685	

Ser	Ile	Cys	Leu	Ala	Leu	Met	Phe	Ile	Ser	Ser	Trp	Tyr	Tyr	Ala	Ile	690	695	700
Val	Ala	Met	Val	Ile	Ala	Gly	Met	Ile	Tyr	Lys	Tyr	Ile	Glu	Tyr	Gln	705	710	715
Gly	Ala	Glu	Lys	Glu	Trp	Gly	Asp	Gly	Ile	Arg	Gly	Leu	Ser	Leu	Ser	725	730	735
Ala	Ala	Arg	Phe	Ala	Leu	Leu	Arg	Leu	Glu	Glu	Gly	Pro	Pro	His	Thr	740	745	750
Lys	Asn	Trp	Arg	Pro	Gln	Leu	Leu	Val	Leu	Leu	Lys	Leu	Asp	Glu	Asp	755	760	765
Leu	His	Val	Lys	His	Pro	Arg	Leu	Leu	Thr	Phe	Ala	Ser	Gln	Leu	Lys	770	775	780
Ala	Gly	Lys	Gly	Xaa	Thr	Ile	Val	Gly	Ser	Val	Ile	Val	Gly	Asn	Phe	785	790	795
Leu	Glu	Asn	Tyr	Gly	Glu	Ala	Leu	Ala	Ala	Glu	Gln	Thr	Ile	Lys	His	805	810	815
Leu	Met	Glu	Ala	Glu	Lys	Val	Lys	Gly	Phe	Cys	Gln	Leu	Val	Val	Ala	820	825	830
Ala	Lys	Leu	Arg	Glu	Gly	Ile	Ser	His	Leu	Ile	Gln	Ser	Cys	Gly	Leu	835	840	845
Gly	Gly	Met	Lys	His	Asn	Thr	Val	Val	Met	Gly	Trp	Pro	Asn	Gly	Trp	850	855	860
Arg	Gln	Ser	Glu	Asp	Ala	Arg	Ala	Trp	Lys	Thr	Phe	Ile	Gly	Thr	Val	865	870	875
Arg	Val	Thr	Thr	Ala	Ala	His	Leu	Ala	Leu	Leu	Val	Ala	Lys	Asn	Ile	885	890	895
Ser	Phe	Phe	Pro	Ser	Asn	Val	Glu	Gln	Phe	Ser	Glu	Gly	Asn	Ile	Asp	900	905	910
Val	Trp	Trp	Ile	Val	His	Asp	Gly	Gly	Met	Leu	Met	Leu	Leu	Pro	Phe	915	920	925
Leu	Leu	Lys	Gln	His	Lys	Val	Trp	Arg	Lys	Cys	Ser	Ile	Arg	Ile	Phe	930	935	940
Thr	Val	Ala	Gln	Leu	Glu	Asp	Asn	Ser	Ile	Gln	Met	Lys	Lys	Asp	Leu	945	950	955
Ala	Thr	Phe	Leu	Tyr	His	Leu	Arg	Ile	Glu	Ala	Glu	Val	Glu	Val	Val	965	970	975
Glu	Met	His	Asp	Ser	Asp	Ile	Ser	Ala	Tyr	Thr	Tyr	Glu	Arg	Thr	Leu	980	985	990
Met	Met	Glu	Gln	Arg	Ser	Gln	Met	Leu	Arg	His	Met	Arg	Leu	Ser	Lys	995	1000	1005

Thr Glu Arg Asp Arg Glu Ala Gln Leu Val Lys Asp Arg Asn Ser Met  
 1010 1015 1020

Leu Arg Leu Thr Ser Ile Gly Ser Asp Glu Asp Glu Glu Thr Glu Thr  
 1025 1030 1035 1040

Tyr Gln Glu Lys Val His Met Thr Trp Thr Lys Asp Lys Tyr Met Ala  
 1045 1050 1055

Ser Arg Gly Gln Lys Ala Lys Ser Met Glu Gly Phe Gln Asp Leu Leu  
 1060 1065 1070

Asn Met Arg Pro Asp Gln Ser Asn Val Arg Arg Met His Thr Ala Val  
 1075 1080 1085

Lys Leu Asn Glu Val Ile Val Asn Lys Ser His Glu Ala Lys Leu Val  
 1090 1095 1100

Leu Leu Asn Met Pro Gly Pro Pro Arg Asn Pro Glu Gly Asp Glu Asn  
 1105 1110 1115 1120

Tyr Met Glu Phe Leu Glu Val Leu Thr Glu Gly Leu Glu Arg Val Leu  
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Leu Val Arg Gly Gly Gly Ser Glu Val Ile Thr Ile Tyr Ser  
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<210> 17  
 <211> 712  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc\_feature  
 <222> (74)  
 <223> n=a, c, g, or t

<220>  
 <221> misc\_feature  
 <222> (250)  
 <223> n=a, c, g, or t

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 catcaaaaac accgggtggc tttgcataca cctcccccca gccagacctg tgggggtattc 180  
 acctgatacn caacaggtgg ccgggtgtac accttttagc aatctgatcc acgctatagt 240  
 cgcttgataa aggtttgcct gcacgcactt ggcccaacta gaacccgtgg gacactcacc 300  
 agataaagga cttacctcga caggaaactg ggggctgagg ggaggaggc ttcattctgct 360  
 gccctgagac catggcactg agccttcagc cccggaccag aggggttagc taggtagctc 420  
 ttcattctga aggaaagaag tcacacaaga ttggcattgt tttgtctttt tggtttttgt 480  
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ttgaattctg agtagaagta ttcttagttg gggctttgtg tgtggtgtga atcaaggtta 600  
ttgaaatgtg ttatttttca agttatcttt tgtattgcag tcaaaagtag ctacggtaaag 660  
aggaagattt tgcgaggttc cccccacttt ttttgttctt aaaaagaaca aa 712

<210> 18  
<211> 1014  
<212> DNA  
<213> mouse

<220>  
<221> misc\_feature  
<222> (525)  
<223> n=a, c, g, or t

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gcttcggcat cctctcgtgg ctctcctctt tctccttctt gtagtgtggg ggtattttcc 120  
cgttatgcat gcgcactctt cccaccagac ccaagtggat tatcgacctc aaaaacatcg 180  
ggtggctcag cacacacctc ctcccagcca gacctgtggg gtattcacct gatacacaac 240  
aggtggcttg tgcacacctt tgcgcaatct gatccacgct cttatacgcc tgataagggg 300  
gggcctgcat gctccgtcct cagctagaac cgtgggacac tcggcagata aaggactaac 360  
tacctcatcc ggaccctggg ggttgagcag agggaggcgt caccagctgc tgtgagatca 420  
tggcacggag cccacagccc tggaccaggg gagatagcta ggattctgaa agaaccaagt 480  
tatacaggat tagcatcggt ttgttcttat tttgttttct cgaanattat ttttcagtta 540  
ctggtggggc actttataaa acagctgggt tgaattctat acacggattc ttaattgggc 600  
ctttgtgggc tgtaaatacag ggtaattgag ggttttttgg tttttttccc cttctatttt 660  
tgcaatcaga agtagctagt gtaggaggaa gagtttttgt gagcttttcc ttttttcttt 720  
gtcaaaaagg aaaggggggg gaaaatgcat ccaccagaag ccaccaccaa gatgtcctca 780  
gttcggttca tgggtgacacc aactaagatt gatgacattc caggtttgtc agacaccagc 840  
ccggacctca gctctcggtc tagttctcga gtaagattta gctcccgaga aagtgtgcca 900  
gaaacaagcc gtagtgagcc tatgagcgaa ctgtctgggg ctactacttc tctggcaact 960  
gttgccctag atccttccag tgaccggact tctaataccc aggatgttac ggag 1014

<210> 19  
<211> 744  
<212> DNA  
<213> mouse

<220>  
<221> misc\_feature

<222> (574)

<223> n=a, c, g, or t

<400> 19

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catatgcttt gaacttaagc aacaatggaa accgtccttt tgttttctga gttgacatag 120  
tgccagtctt cattaaagag ggtagtttgt gaaataaagt gttccctgat ctttctcgtg 180  
tgaagtaaaa ggacagatga tgagtaaggt tgagatgatg gaaccagag aagtggcaat 240  
aaattaaagg aaacaagtgg gagacacagg gtggacagct cttgatgagc tcacgggctt 300  
tagctttctg ccgcctggag aaactgcccc gacagttgga gttctacagg ttaataacaa 360  
taagctgggg tggagtgcct aagcctttta agagaatgat aaacagggcg gaaggcgtgt 420  
cttcaagcgt cccactccct tggggctatg gtcacgtggg ctcaagtactt cccgattccc 480  
agccactgtc tccctaggct gtgctctgag tgtggaggga gagaggcagg gacgcacggg 540  
aaggaaaattt aaacgctgaa agcaagggtc tgtntgtaag aacaatgccg cacttcaactg 600  
tgaccaaggt agaagacca gaggaggggg cagctggccc cctctctcct gagcccagct 660  
cagcagaagt aaaagcccgg attcaggatc cccaagaacc aggtaagtcc tgcgcttgta 720  
gcgtcggggg acccacagac tagt 744

<210> 20

<211> 52

<212> DNA

<213> Homo sapiens

<400> 20

atgcccaaca acctgacgga ctgcgaggac ggcgatgggg gagccaacc gg 52

<210> 21

<211> 95

<212> DNA

<213> Homo sapiens

<400> 21

gtgatggcaa cccaaggaa agcagtcctt tcatcaacag caccgacaca gagaaggga 60  
aggagtatga tggcaagaac atggccttgt ttgag 95

<210> 22

<211> 132

<212> DNA

<213> Homo sapiens

<400> 22

gaggagatgg acaccagccc tatgggtgtcc tccttgetca gtggcctggc caactacacc 60  
aacctgcccc agggaagtag ggagcatgaa gaggcagaaa acaatgaggg tggaaaaaag 120

aagccggtgc ag

132

<210> 23  
<211> 147  
<212> DNA  
<213> Homo sapiens

<400> 23  
gccccacgca tgggcacctt catgggcgtg tacctgccgt gcctgcagaa catctttggc 60  
gtcatcctct tcctgcggct cacctgggtg gtgggcattg caggcatcat ggagtccttc 120  
tgcattggtg tcattctgctg ctctgtg 147

<210> 24  
<211> 55  
<212> DNA  
<213> Homo sapiens

<400> 24  
acgatgctca cggccatctc catgagtgc attgcaacga atgggtgttg gcctg 55

<210> 25  
<211> 131  
<212> DNA  
<213> Homo sapiens

<400> 25  
ctggtggctc ctactacatg atttccaggt ctctgggccc agagtttggg ggtgccgtgg 60  
gcctctgctt ctacctgggc actacctttg caggagccat gtacatcctg ggcaccatcg 120  
aaatcctgct g 131

<210> 26  
<211> 242  
<212> DNA  
<213> Homo sapiens

<400> 26  
gcttacctct tcccagccat ggccatcttc aaggcagaag atgccagtgg ggaggcagca 60  
gccatgctga acaacatgcg tgtttacggc acctgtgtgc tcacctgcat ggccactgtg 120  
gtgtttgtgg gtgtcaagta tgtcaacaag tttgcccttg tcttcctggg ttgtgtcatc 180  
ctctccatcc tggccatcta tgctgggggc atcaagtctg ccttcgaccc acccaacttc 240  
cc 242

<210> 27  
<211> 212  
<212> DNA  
<213> Homo sapiens

<400> 27  
gatctgcctc ctgggtaacc gcacgctgtc tcgccatggc tttgatgtct gtgccaagct 60  
ggcttgggaa ggaaatgaga cggtgaccac acggetatgg ggctttttct gtcctctctg 120  
cttctcaac gccacctgtg atgaatactt caccgaaac aatgtcacag agatccaggg 180  
catccctggg gctgccagtg gcctcatcaa ag 212

<210> 28  
<211> 171  
<212> DNA  
<213> Homo sapiens

<400> 28  
agaacctctg gagctcctac ctgaccaagg gcgtgattgt ggagaggagt gggatgacct 60  
cgggtgggct ggccgatggc actcctatcg acatggacca cccttatgtc ttcagtata 120  
tgacctcta cttcacctg ctgggtggca tctacttccc ctcatcaca g 171

<210> 29  
<211> 99  
<212> DNA  
<213> Homo sapiens

<400> 29  
ggatcatggc tggttctaac cgctctgggg acctgagggg tgcccagaag tcaatcccca 60  
ctggcaccat cctggccatc gccaccacct ctgctgtct 99

<210> 30  
<211> 58  
<212> DNA  
<213> Homo sapiens

<400> 30  
acatcagctc cggtgttctg tttggggcct gcattgaggg ggtcgtcctg cgggacaa 58

<210> 31  
<211> 175  
<212> DNA  
<213> Homo sapiens

<400> 31  
gtttggcgaa gctgtgaatg gcaacctcgt ggtgggcact ctggcctggc catctccatg 60  
ggtaattgtc atcggatcct tcttctccac ctgtggggct gggctgcaga gcctcacggg 120  
ggccccacgc ctgctgcagg ccatctcgag ggatggcatt gtgcccttcc tgcag 175

<210> 32  
<211> 119  
<212> DNA  
<213> Homo sapiens

<400> 32  
gtctttggcc atggcaaggc caatggagag cgcacctggg ccctgctcct gactgcctgc 60  
atctgcgaga ttggcatcct cattgcatcc ctgcacgagg tggcccccat cctctctat 119

<210> 33  
<211> 99  
<212> DNA  
<213> Homo sapiens

<400> 33  
gttcttcctg atgtgctaca tgtttgtgaa tctggcctgt gcagtgcaga cgctgctgag 60  
gacaccaaac tggaggccac gctttcgata ttaccactg 99

<210> 34  
<211> 120  
<212> DNA  
<213> Homo sapiens

<400> 34  
gacctctcc ttctgggca tgagcctctg cctggccctc atgttcatct gctcctggta 60  
ttatgcactg gtagccatgc tcattgctgg actcatctac aagtacattg agtaccgtgg 120

<210> 35  
<211> 105  
<212> DNA  
<213> Homo sapiens

<400> 35  
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cctcttacgc ctggaggaag ggccccaca caccaagaac tggag 105

<210> 36  
<211> 169  
<212> DNA  
<213> Homo sapiens

<400> 36  
gccacagctg ctggtgctgg tgcgtgtgga ccaagaccag aatgtggtgc acccccagct 60  
gctctcactg acctccagc tgaaggcagg gaagggcctg accatcgtgg gctctgtcct 120  
tgagggcacc tttctggaaa atcatccaca ggcccagcgg gcagaagag 169

<210> 37  
<211> 196  
<212> DNA  
<213> Homo sapiens

<400> 37  
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tccaacttgc gtgatggcgt gtcccatctg atccagtcg ggggcctcgg ggggctgcag 120  
cacaacactg tgcttgttgg ctggccccgc aactggcgcc agaaggaaga tcatcagacg 180  
tggaggaact tcattg 196

<210> 38  
<211> 170  
<212> DNA  
<213> Homo sapiens

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tgtttccttg gaaccctgag cgcttctctg agggcagcat cgacgtttgg tggattgtgc 120  
acgatggagg catgctcatg ctgctgccct tctgtctgcg gcaccacaag 170

<210> 39  
<211> 132  
<212> DNA  
<213> Homo sapiens

<400> 39  
gtctggcgga agtgcaagat gcgtatcttc actgtggccc agatggatga caatagcatc 60  
cagatgaaga aggatctgac cacatttctg tatcatttac gcatcactgc ggaggtcgag 120  
gtggtggaga tg 132

<210> 40  
<211> 231  
<212> DNA  
<213> Homo sapiens

<400> 40  
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cagatcctca aacagatgca tttaaccaag aatgagcggg agcgggagat ccagagtatc 120  
acagatgagt cagcaggctc aatccggaga aagaatccag ccaacacgcg gtcgcgcctg 180  
aacgtcccag aagagacggc tggtgacagt gaagagaagc cagaggagga g 231

<210> 41  
<211> 215  
<212> DNA  
<213> Homo sapiens

<400> 41  
gtgcagctga tccacgatca gagtgtccc agctgcccc gcagctcccc gtccccaggg 60  
gaggagcctg agggggaagg ggagacagat ccggagaagg tgcattctac ctggaccaag 120  
gacaagtcgg tggcagagaa gaataagggc cccagtcctg tctcctctga gggcatcaag 180  
gacttcttca gcatgaagcc ggagtgggag aactt 215

<210> 42  
<211> 134  
<212> DNA  
<213> Homo sapiens

<400> 42  
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gaaatccccg gacgccaaagc ttgttttctt caacatgcct gggcctcccc gcaaccgcaa 120  
tggtgatgaa aact 134

<210> 43  
<211> 92  
<212> DNA  
<213> Homo sapiens

<400> 43  
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gcggccgcga ggtcatcacc atctactcct ga 92

<210> 44  
<211> 290  
<212> DNA  
<213> Homo sapiens

<400> 44  
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cgacacagag aagggaaagg agtatgatgg caagaacatg gccttggttg aggtgggctg 180  
ctatggctgt tgggccccca cctacaattc attatcctga ttcacagct gctctctccc 240  
tccctcccta tagagcaata ccctcgtctc caccctccc ttgagtctac 290

<210> 45  
<211> 259  
<212> DNA  
<213> Homo sapiens

<400> 45  
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ctcagtggcc tggccaacta caccaacctg cccagggaa gtagggagca tgaagaggca 180  
gaaaacaatg agggtgga aaagaagccg gtgcagggtg ggacctcggg ggatgagaaa 240  
tggaagaaaa gggacggat 259

<210> 46  
<211> 315  
<212> DNA

<213> Homo sapiens

<220>

<221> misc\_feature

<222> (294)

<223> n=a, c, g, or t

<400> 46

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gggcattgca ggcacatgag agtccttctg catggtgttc atctgctgct cctgtgtgag 240  
tgacaccctt cccctcacca cccctgaca gctggggctt ggcagaggcc tggnggggtg 300  
gaggtgggag gatgg 315

<210> 47

<211> 249

<212> DNA

<213> Homo sapiens

<400> 47

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gtgcaattgc aacgaatggt gttgtgcctg gtaggtgact ggggctttgt ggggagggag 180  
gatggctggg tggaaggagg gatagtgcc tgggcttttg gggacatcaa ggcccaagag 240  
agataatat 249

<210> 48

<211> 305

<212> DNA

<213> Homo sapiens

<400> 48

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tggtggctcc tactacatga tttccaggtc tctgggcccc gagtttgggg gtgccgtggg 180  
cctctgcttc tacctgggca ctacctttgc aggagccatg tacatcctgg gcaccatcga 240  
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atcag 305

<210> 49

<211> 503

<212> DNA

<213> Homo sapiens

<400> 49  
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ccccctccct gccctcaga atctcagagt ggtgtggggt gggagtagct tcccttggga 480  
gggaaaatct ctcttagttt ggg 503

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<213> Homo sapiens

<400> 50  
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ctacctgacc aagggcgtga ttgtggagag gagtgggatg acctcggtgg gcctggccga 180  
tggcactcct atcgacatgg accaccctta tgtcttcagt gatatgacct cctacttcac 240  
cctgctgggtt ggcacttact tcccctcagt cacagggtgaa ggggagctca gagaggggaag 300  
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ccaaaaaccc catcatgaaa gcaaccg 387

<210> 51  
<211> 313  
<212> DNA  
<213> Homo sapiens

<400> 51  
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tctgggtctcc tgtggccctg gcttgagtc tagctgcact tctgttttgc agggatcatg 120  
gctgggttcta accgctctgg ggacctgagg gatgcccaga agtcaatccc cactggcacc 180  
atcctggcca tcgccaccac ctctgctgct tgtatcctgc acagctgtgc tgggaccacc 240  
ctcgggggag ggcaagaggg agggcagctg aacttgctgc cttacctgct ggtgcaggaa 300  
gggtggggag ggg 313

<210> 52  
<211> 132  
<212> DNA  
<213> Homo sapiens

<400> 52  
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aagataattg gggttgatcc tattctgggg gaggggtggg tatagaaggc tgagttctgg 120  
gaaacagacc ca 132

<210> 53  
<211> 365  
<212> DNA  
<213> Homo sapiens

<400> 53  
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gaatggcaac ctctgtggtg gcactctggc ctggccatct ccatgggtaa ttgtcatcgg 180  
atccttcttc tccacctgtg gggctgggct gcagagcctc acggggggccc cagcctctgct 240  
gcaggccatc tcgagggatg gcattgtgcc cttcctgcag gtcagtgtgg gagaagaaca 300  
gcccaccctc agtagaccag ccaggcccct gccagagag accacacagt gaccaggggc 360  
cataa 365

<210> 54  
<211> 209  
<212> DNA  
<213> Homo sapiens

<400> 54  
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ccgacctggg cctgctcct gactgcctgc atctgcgaga ttggcatcct cattgcatcc 180  
ctcgacgagg tggcccccat cctctctat 209

<210> 55  
<211> 209  
<212> DNA  
<213> Homo sapiens

<400> 55  
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ctgggtctaa ggaccccaaa cctgaagag

209

<210> 56  
<211> 336  
<212> DNA  
<213> Homo sapiens

<400> 56  
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gtggaccaag accagaatgt ggtgcacccc cagctgctct cactgacctc ccagctgaag 180  
gcagggaagg gcctgaccat cgtgggctct gtccttgagg gcacctttct ggaaaatcat 240  
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aggacactta ggaagacagt ctctatcctt ttgtac 336

<210> 57  
<211> 272  
<212> DNA  
<213> Homo sapiens

<400> 57  
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gatggaggca gagaagggtga agggcttctg ccagggtggtg atctcctcca acttgctgga 120  
tggcgtgtcc catctgatcc agtccggggg cctcgggggg ctgcagcaca acactgtgct 180  
tgttggctgg ccccgcaact ggcgccagaa ggaagatcat cagacgtgga ggaacttcat 240  
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<210> 58  
<211> 328  
<212> DNA  
<213> Homo sapiens

<400> 58  
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ctggtccggg aaaccacagc tggccactta gccctgctgg tcaccaagaa cgtttccatg 120  
tttcctggga accctgagcg cttctctgag ggcagcatcg acgtttggtg gattgtgcac 180  
gatggaggca tgctcatgct gctgcccttc ctgctgcggc accacaaggc gagttgtgtg 240  
cgtgagtgtg tgcacgtgtg agtgtgtgta tgcattgtatg catttgtgtg catatgtgca 300  
caactgcagg tcagactcag gggctctg 328

<210> 59  
<211> 303  
<212> DNA

<213> Homo sapiens

<400> 59

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aatagcatcc agatgaagaa ggatctgacc acatttctgt atcatttacg catcactgcg 180
gaggtcgagg tgggtggagat ggtgagtoce caggagacac cgctgggggtt ccacctggcc 240
ctctttcctc ttggccccag caccaagtag ggcaactcta acacccatca gcttatgatg 300
cta 303
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<210> 60

<211> 295

<212> DNA

<213> Homo sapiens

<400> 60

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cagatcctca aacagatgca tttaaccaag aatgagcggg agcgggagat ccagagtatc 120
acagatgagt cagcaggctc aatccggaga aagaatccag ccaacacgcg gctccgcctg 180
aacgtcccag aagagacggc tggtgacagt gaagagaagc cagaggagga ggtgtgcagc 240
ttgggtggtt tggccccaac cagtgggagc agagcccttg gcctccaaag gactc 295
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<210> 61

<211> 400

<212> DNA

<213> Homo sapiens

<400> 61

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gcagctgac cagatcaga gtgctcccag ctgccccagc agtccccgt cccaggggga 120
ggagcctgag ggggaagggg agacagatcc ggagaagggt catctcacct ggaccaagga 180
caagtcggtg gcagagaaga ataagggccc cagtccctgt tcctctgagg gcatcaagga 240
cttcttcagc atgaagccgg agtgggagaa cttgtaagt cttcagcatt ttttcattct 300
ctctcctagg atggccaggg tccctaccct cctcactctg ttgtgaaccc ctaattggtg 360
ccacgacctc tgggatctct gaatagccta gcctggagat 400
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<210> 62

<211> 346

<212> DNA

<213> Homo sapiens

<400> 62

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tgcaagaacc agtccccagc agcccagttc gggctggaag ggcgactggc tccaatcttc 60
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tctaccccc cggtcacgc ggtctccact cctccttcct gccgcaggaa ccagtccaac 120  
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gccaagcttg ttttgctcaa catgcctggg cctccccgca accgcaatgg tgatgaaaac 240  
tgtatcctgg aattaaaatt gggggaaaga gggaggtgga cgtcaggga tctgggtcct 300  
gtccctggga tggaagagct gagctgttcc tgccctccgga tcagca 346

<210> 63  
<211> 2733  
<212> DNA  
<213> Homo sapiens

<400> 63  
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cagagcacct ggaccgggtg atgctggtcc gcggcggcgg ccgcgaggtc atcaccatct 180  
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gaaccaaagt tgcactatct gggcccagat tgtctggttg gcaagagcaa agtttccgtt 2220  
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ccttggtaat aggagagggt gcaaaccaaa tcaagagtat ttattactat tactgctatt 2520  
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tattgatctt gtgttctttg tgccaatatg aaaaggagag ggttggttct ttcctttatt 2640  
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ctgcacaaaa tgcaataaaa ataattttat taa 2733

<210> 64  
<211> 304  
<212> DNA  
<213> Homo sapiens

<400> 64  
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actgtgagtt gtttttccct caactaggag atggaaatcc aagagaaaac agccattcc 120  
tcaacaatgt cgaggtggaa caagagagct tctttgaagg gaagaacatg gcacttttcg 180

aggtaacttt acttttttaga agaagaaggt gccagggccg ttgctttgat gtggaaaagt 240  
aaaggagccc ctggggggccc ccaggccggg gcctcccaca ggactggaca ccacgtggaa 300  
ggaa 304

<210> 65  
<211> 268  
<212> DNA  
<213> Homo sapiens

<400> 65  
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gagatggaca gtaaccccat ggtgtcctcg ctgtcaaca agctggccaa ctacaccaac 120  
ctgagccagg gcgtggtgga gcacgaggag gacgaggaga gccggcggcg ggaggccaag 180  
gttctgccac cctgcccgtg cccgcccagt ccccgcccag tccccgcccc gtgtgtcccc 240  
gcagggttag atcacgccg caaggcag 268

<210> 66  
<211> 180  
<212> DNA  
<213> Homo sapiens

<400> 66  
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caggtaaggg gtgcccgcga gccgcgcccc tgagtcctgt tagaggagtc tgtgttttgc 180

<210> 67  
<211> 272  
<212> DNA  
<213> Homo sapiens

<400> 67  
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cgcctttgtc tccgcagctg gcgggtccta ctacatgata tcgcgctcgc tgggacccga 120  
gtttggaggc gctgtcggcc tctgcttcta cctgggcacg acgtttgcag gggccatgta 180  
tattttgggg accatcgaga tttttctggt aagtgtgctg ctttggaagg gttcccaccc 240  
cacagtctgt ggcaggatgc caaggggccc tg 272

<210> 68  
<211> 359  
<212> DNA  
<213> Homo sapiens

<400> 68  
ttgcgggagg gacgggcact ggggagttgt gtccggggac ggctcccga cctgccttgt 60  
tcccacagac gtacatctcc ccgggtgcgg ccattctcca ggcggaggct gcaggtggcg 120  
aggcgccgc catgctgcac aacatgcgtg tgtacggcac gtgcacgctc gtgctcatgg 180  
ccctgggtggc cttcgtgggc gtcaagtatg tcaacaagct ggcgctggtc ttctggcct 240  
gcgtcgtgct gtccatcctg gccatctatg ccggcgcat caagtctgcc ttcgaccccc 300  
cggacatccc gtgagtctcg gggcctctga gccgaggggtg ggtgtggggc tggggccag 359

<210> 69  
<211> 378  
<212> DNA  
<213> Homo sapiens

<400> 69  
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tgccgtgcct ccctgtcccg cccaggtct gcctcctggg gaaccgcacg ctgtcacggc 120  
gcagcttcca tgctgcgtc aaggcctacg gcatccacaa caactcagcc acctccgcgc 180  
tctggggcct cttctgcaac ggctcccagc ccagcgccgc ctgtgacgag tacttcatcc 240  
agaacaacgt caccgaaatc cagggcatcc cgggcgcggc cagtgggtgc ttctgggtg 300  
aggctcacag ggctgcagct ggagctgggg ggtggcgggg gcagcaggcg ctggccctgg 360  
tggtgctct cgccttag 378

<210> 70  
<211> 320  
<212> DNA  
<213> Homo sapiens

<400> 70  
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ccttgcccgg cagagaacct gtggagtacg tacgcgcacg cgggggcgtt tgtggagaag 120  
aaagggtgtc cctcggtgcc cgtggcagag gagagccgtg ccagcacact gccctacgtg 180  
ctcaccgaca tcgcggcctc cttcaccctg ctggttggca tctacttccc ttccgtgacc 240  
ggtgagcccg ctgctccagg cttcccccctc tctttctttc tctccctctc ttttttgagg 300  
caaggtcttg ctctgtcacc 320

<210> 71  
<211> 302  
<212> DNA  
<213> Homo sapiens

<400> 71  
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tgactcctca gatgggtctt tgcagcattt tcatgttcac aggtatcatg gcggggtcaa 120  
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tagtgacgac gtcttttcac tgtatccttg gaggggtgca ggcgagggtt ccagcctctg 240  
cctgggggga ggcccccatg ccctccccgg ctcagcatca taccctcggc caccagcatg 300  
tg 302

<210> 72  
<211> 304  
<212> DNA  
<213> Homo sapiens

<400> 72  
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gcaccctcgt acgggggggac cctggaaggt cagggtcggg ggctctctc ccctgtttta 300  
tcct 304

<210> 73  
<211> 263  
<212> DNA  
<213> Homo sapiens

<400> 73  
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tctccctgca ggtgtttggc cacgggaagg ccaacgggga gccacgtgg gcgctgctgc 120  
tgacagtccct catctgcgag actggcatcc tcatgcctc tctggacagc gtggccccga 180  
tcctctccat gtgagcccc acaggacggg gacctgggga tgggtgtatg ggctgggagc 240  
gtggggcagt gtggatggga ggt 263

<210> 74  
<211> 249  
<212> DNA  
<213> Homo sapiens

<400> 74  
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tcctcatgtg ctacctgttc gtgaacctgg cctgcgccgt gcagaccctg ctacgtaccc 120  
ccaactggcg tccacgttcc aagttctacc actggtgagg ctactcagca cgggcgtgag 180  
gagccccaca ggctgggaca ctgggtgcct ctgccactgg tgaggccgct cagcacaggc 240

gtcaggagc

249

<210> 75  
<211> 264  
<212> DNA  
<213> Homo sapiens

<400> 75  
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tgtccgccat gctcatcgct ggctgcatct acaagtacat cgagtaccgc gggtaagcgc 180  
tgtcagcccc ccttacagac ccggcgcacg ggagggcggg cccctctcat gctatgcctg 240  
gggcagctcc ctggaggggc ctcc 264

<210> 76  
<211> 290  
<212> DNA  
<213> Homo sapiens

<400> 76  
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<210> 77  
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<212> DNA  
<213> Homo sapiens

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<210> 78  
<211> 372

<212> DNA

<213> Homo sapiens

<400> 78

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<210> 79

<211> 321

<212> DNA

<213> Homo sapiens

<400> 79

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<210> 80

<211> 262

<212> DNA

<213> Homo sapiens

<400> 80

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<210> 81

<211> 318

<212> DNA

<213> Homo sapiens

<400> 81

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<210> 82  
<211> 299  
<212> DNA  
<213> Homo sapiens

<400> 82  
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<210> 83  
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<212> DNA  
<213> Homo sapiens

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<212> DNA  
<213> Homo sapiens

<400> 84  
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<210> 85  
<211> 291  
<212> DNA  
<213> Homo sapiens

<400> 85  
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tttactgtga ctaaggtaga ggaccagag gagggggcag cggcttcgat ctctcaagag 120  
cctagttag cagacataaa agcccggatt caggattcag atgaaccagg tgagtacgca 180  
acttgggagc ttttggaaac tataaaatgt ttcattgaaag aagtaactag gatatcaaaa 240  
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<210> 86  
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<212> DNA  
<213> Homo sapiens

<400> 86  
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ttatccaaag tcacccttaa ctcatctatc ctaacagaca ttactccctt ctctgattct 240  
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<210> 87  
<211> 366  
<212> DNA  
<213> Homo sapiens

<400> 87  
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cagacgacgg acataagaaa gctcgaaatg cttatctcaa taattccaat tatgaagaag 180  
gagatgaata ttttgataaa aatttggcac tctttgaggt catattttgg agaaaactat 240

ggactcgagc actttaggaa cagagatctc atgatagcca tattttaccc catttggttt 300  
aaaaatttta caagctggat aatttaatgt taaaagaaaa tattgtaact tgttattata 360  
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<210> 88  
<211> 342  
<212> DNA  
<213> Homo sapiens

<400> 88  
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ccaattacac taatctgact caaggagcaa aggaacatga agaggcagaa aacatcactg 180  
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<210> 89  
<211> 238  
<212> DNA  
<213> Homo sapiens

<400> 89  
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<210> 90  
<211> 167  
<212> DNA  
<213> Homo sapiens

<400> 90  
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gttgactgct atctccatga gtgccattgc cactaatgga gtggtgccag gttagtaggt 120  
caaggttgta tttcaagatt tatcagtgtt gactctgtgt ttatgct 167

<210> 91  
<211> 359  
<212> DNA  
<213> Homo sapiens

<400> 91

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aatgacttca ttgtggtcta taatatagaa gaaatattga tttaggttta ttctttgcta 300  
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<210> 92  
<211> 402  
<212> DNA  
<213> Homo sapiens

<400> 92  
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<210> 93  
<211> 363  
<212> DNA  
<213> Homo sapiens

<400> 93  
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<210> 94  
<211> 291  
<212> DNA  
<213> Homo sapiens

<400> 94

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<210> 95  
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<212> DNA  
<213> Homo sapiens

<400> 95  
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<210> 96  
<211> 205  
<212> DNA  
<213> Homo sapiens

<400> 96  
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<210> 98  
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<212> DNA  
<213> Homo sapiens

<400> 98  
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<210> 99  
<211> 249  
<212> DNA  
<213> Homo sapiens

<400> 99  
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<210> 100  
<211> 255  
<212> DNA  
<213> Homo sapiens

<400> 100  
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ggcatgtgcc ttgcaaacat tacttcgaac acccaactgg agaccccgat tccgctacta 180  
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aactagaaaa ctagg 255

<210> 101  
<211> 251  
<212> DNA

<213> Homo sapiens

<400> 101

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<210> 102

<211> 313

<212> DNA

<213> Homo sapiens

<400> 102

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<210> 103

<211> 305

<212> DNA

<213> Homo sapiens

<400> 103

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<210> 104

<211> 323

<212> DNA

<213> Homo sapiens

<400> 104

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<212> DNA  
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<210> 106  
<211> 335  
<212> DNA  
<213> Homo sapiens

<400> 106  
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<210> 107  
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<213> Homo sapiens

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<213> Homo sapiens

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<211> 3422

<212> DNA

<213> Homo sapiens

<220>

<221>

<222>

<223> n=a, c, g, or t

<400> 111

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<212> DNA  
<213> *Xenopus laevis*

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<222>  
<223> n=a, c, g, or t

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aaaaaaaaaa 2290

<210> 113

<211> 361

<212> PRT

<213> *Xenopus laevis*

<400> 113

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20 25 30

Lys Val Lys Gly Phe Cys Gln Val Val Val Ala Gln Lys Leu Lys Glu  
35 40 45

Gly	Leu	Ser	His	Leu	Ile	Gln	Ser	Cys	Gly	Leu	Gly	Gly	Met	Arg	His	50	55	60
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Ser	Arg	Ala	Trp	Lys	Ser	Phe	Ile	Thr	Thr	Ile	Arg	Val	Thr	Thr	Ala	85	90	95
Ala	Arg	Gln	Ala	Leu	Leu	Val	Ala	Lys	Asn	Val	Ser	Phe	Phe	Pro	Gly	100	105	110
Ser	Arg	Glu	Thr	Leu	Ala	Glu	Gly	His	Ile	Asp	Val	Trp	Trp	Ile	Val	115	120	125
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Lys	Val	Trp	Arg	Lys	Cys	Lys	Met	Arg	Ile	Phe	Thr	Val	Ala	Gln	Met	145	150	155
Glu	Asp	Asn	Ser	Ile	Gln	Met	Lys	Lys	Asp	Leu	Ala	Thr	Phe	Leu	Tyr	165	170	175
His	Leu	Arg	Ile	Ala	Ala	Asp	Val	Glu	Val	Val	Glu	Met	His	Asp	Ser	180	185	190
Asp	Ile	Ser	Ala	Tyr	Thr	Tyr	Glu	Arg	Thr	Leu	Met	Met	Glu	Gln	Arg	195	200	205
Ser	Gln	Met	Leu	Arg	Gln	Met	Arg	Leu	Ser	Lys	Thr	Asp	Arg	Glu	Arg	210	215	220
Glu	Ala	Gln	Leu	Val	Lys	Asp	Arg	Asn	Ser	Ile	Leu	Arg	Leu	Thr	Ser	225	230	235
Val	Gly	Ser	Asp	Asp	Asp	Glu	Asp	Thr	Glu	Ala	Ala	Pro	Glu	Arg	Val	245	250	255
His	Met	Thr	Trp	Thr	Arg	Asp	Lys	His	His	Ala	Val	Arg	Val	Ala	Gln	260	265	270
Ser	Lys	Pro	Met	Pro	Ser	Cys	Gln	Asp	Leu	Leu	Asn	Ile	Arg	Pro	Asp	275	280	285
Gln	Ser	Asn	Val	Arg	Arg	Met	His	Thr	Ala	Val	Lys	Leu	Asn	Glu	Val	290	295	300
Ile	Val	Asn	Lys	Ser	His	Asp	Ala	Lys	Leu	Val	Leu	Leu	Asn	Met	Pro	305	310	315
Gly	Pro	Pro	Arg	Asn	Pro	Gln	Gly	Asp	Glu	Asn	Tyr	Met	Glu	Phe	Leu	325	330	335
Glu	Val	Leu	Thr	Glu	Gly	Leu	Glu	Arg	Val	Leu	Val	Val	Arg	Gly	Gly	340	345	350
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 <213> Homo sapiens

<400> 114  
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<210> 115  
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 <212> DNA  
 <213> Homo sapiens

<400> 115  
 gtgtcttaaggagacaccacagc 23

<210> 116  
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 <212> PRT  
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<400> 116

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Asp Glu Tyr

<210> 117  
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<400> 117

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Ser Pro

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 <213> homo sapiens

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<400> 119

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<212> DNA  
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<212> DNA  
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<211> 80  
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<213> mouse

<400> 130

tccagaaccg tggacagcgc c

21

<210> 131  
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<213> mouse

<220>  
<221>  
<222>  
<223> n=a,c, g, or t; sequence "nnnnn" comprises an undetermined number of nucleotides

<400> 131  
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